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Waste Tank Summary Report for Month Ending April 30, 2000

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Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

CH2MHILL
Hanford Group, Inc.

Richland, Washington

Contractor for the U.S. Department of Energy
Office of River Protection under Contract DE-AC06-99RL14047

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B. M. Hanlon
CH2M HILL Hanford Group, Inc.

Date Published
June 2000

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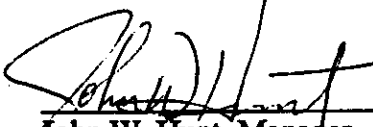
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WASTE TANK SUMMARY REPORT

B. M. Hanlon

ABSTRACT

This report is the official inventory for radioactive waste stored in underground tanks in the 200 Areas at the Hanford Site. Data that depict the status of stored radioactive waste and tank vessel integrity are contained within the report. This report provides data on each of the existing 177 large underground waste storage tanks and 63 smaller miscellaneous underground storage tanks and special surveillance facilities, and supplemental information regarding tank surveillance anomalies and ongoing investigations. This report is intended to meet the requirement of U. S. Department of Energy-Richland Operations Office Order 435.1 (DOE-RL, July 1999, Radioactive Waste Management, U. S. Department of Energy-Richland Operations Office, Richland, Washington) requiring the reporting of waste inventories and space utilization for Hanford Tank Farm tanks.

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METRIC CONVERSION CHART		
1 inch	=	2.54 centimeters
1 foot	=	30.48 centimeters
1 gallon	=	3.80 liters
1 ton	=	0.90 metric tons
$^{\circ}\text{F} = \left(\frac{9}{5} ^{\circ}\text{C} \right) + 32$		
1 Btu/h = 2.930711 E-01 watts (International Table)		

WASTE TANK SUMMARY REPORT FOR MONTH ENDING APRIL 30, 2000

Note: Changes from the previous month are in bold print.

I. WASTE TANK STATUS

Category	Quantity	Date of Last Change
Double-Shell Tanks ^b	28 double-shell	10/86
Single-Shell Tanks	149 single-shell	1966
Assumed Leaker Tanks	67 single-shell	07/93
Sound Tanks	28 double-shell	1986
	82 single-shell	07/93
Interim Stabilized Tanks ^a	123 single-shell	04/00
Not Interim Stabilized ^c	26 single-shell	04/00
Intrusion Prevention Completed	108 single-shell	09/96
Controlled, Clean, and Stable ^f	36 single-shell	09/96
Watch List Tanks ^d	21 single-shell	12/99 ^e
	6 double-shell	06/93
Total	27 tanks	

^a Of the 123 tanks classified as Interim Stabilized, 65 are listed as Assumed Leakers. (See Table G-1)

^b Six double-shell tanks are currently included on the Hydrogen Watch List and are thus prohibited from receiving waste in accordance with "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510.

^c Two of these tanks are Assumed Leakers (BY-105, BY-106). (See Table F-1)

^d See Appendix D for more information on Watch List Tanks.

^e Dates for the Watch List tanks are "officially added to or removed from the Watch List" dates. Eighteen tanks were removed from the Organic Watch List in December 1998; two tanks still remain on this watch list. In December 1999, tank C-106 was officially removed from the High Heat Load Watch List.

^f The TY tank farm was officially declared Controlled, Clean, and Stable (CCS) in March 1996. The TX tank farm and BX tank farms were declared CCS in September 1996.

II. WASTE TANK INVESTIGATIONS

This section includes all single- or double-shell tanks or catch tanks which are showing surface level or interstitial liquid level (ILL) decreases, or drywell radiation level increases in excess of established criteria.

A. Assumed Leakers or Assumed Re-leakers: (See Appendix H for definition of "Re-leaker")

This section includes all single- or double-shell tanks or catch tanks for which an off-normal or unusual occurrence report has been issued, or for which a waste tank investigation is in progress, for assumed leaks or re-leaks.

Tanks/catch tanks will remain on this list until either a) completion of Interim Stabilization, b) the updated occurrence report indicates that the tank/catch tank is not an assumed leaker, or c) the investigation is completed.

There are no formal leak investigations in progress. There are no tanks for which an off-normal or unusual occurrence report has been issued for assumed leaks or re-leaks.

B. Tanks with increases indicating possible intrusions:

This section includes all single-shell tanks and related receiver tanks for which the surveillance data show that the surface level or ILL has met or exceeded the increase criteria, or are still being investigated.

Candidate Intrusion List: Increase criteria in the following tanks indicate possible intrusions.

Tank 241-B-202
Tank 241-BX-101
Tank 241-BX-103
Tank 241-BY-103

The surveillance data was last reviewed on the tanks listed as having probable liquid intrusions: Memo 74B20-99-045, dated November 22, 1999.

Catch Tank 241-AX-152: The liquid level in this catch tank was steady around 66.75 inches from the startup of Project W-030, Tank Farm Ventilation System, in March 1998 until late August 1998. The level then began to decrease. The October 1998 reading of 65 inches is 1.75 inches below the summer average. This is an active catch tank, routinely pumped, and deviations from baseline are not applicable per OSD-00031. The decrease represents a significant change in trend and it is apparent that tank conditions changed around the end of August 1998.

Resolution Status: Discrepancy Report #98-853 was issued on November 4, 1998. One possible cause under investigation is a change in flow path, causing an increase in evaporation. The tank was pumped down to 2.25 inches on November 13, 1998. Since that time the level has decreased to 0.00 inches. The Discrepancy Report will remain open and catch tank AX-152 will remain on the alert list until an engineering investigation is complete.

The discrepancy remained unresolved, and there was a renewed interest in this tank because of its importance for deactivation of the 702A ventilation system to prepare it for Decommissioning and Deactivation and for collection of drainage from AX-155. In the absence of an agreement on a leak test, management requested a leak assessment. The leak assessment team met April 20, 2000, to review the data. Observations inconsistent with a conclusion that the catch tank was leaking and scanty data prompted the leak assessment team to defer decision pending availability of additional data - primarily tank temperature and a more sensitive level measuring device to shorten the necessary leak test time. A Leak Test Recommendation will be issued in early May 2000.

Also, Work Package ES-99-00133 to perform vapor sampling to support resolution of a flammable USQ for the facility has been prepared.

III. SURVEILLANCE AND WASTE TANK STATUS HIGHLIGHTS

1. Single-Shell Tanks Interim Stabilization (See Table G-1 footnotes for further information)

Tank 241-S-103 - This tank was declared interim stabilization April 18, 2000. Total pumped: 23.9 Kgallons. Total waste: 237.2 Kgallons; supernate 1.0 Kgallons; DIL 44.8 Kgallons; DLR 45.8 Kgallons; PLR 38.5 Kgallons; sludge 9.0 Kgallons; saltcake 227.2 Kgallons.

Tank 241-SX-104 - This tank was declared interim stabilized April 26, 2000, due to major equipment failure. Total pumped: 231.3 Kgallons. Total waste: 445.8 Kgallons; no supernate; DIL 47.7 Kgallons; DLR 47.7 Kgallons; PLR 43.6 Kgallons; sludge 136.0 Kgallons; saltcake 309.8 Kgallons.

2. Single-Shell Tanks Saltwell Jet Pumping (See Table A-6 footnotes for further information)

Tank 241-S-102 - Pumping continued until November 17, 1999, when pump problems forced a shutdown. The pump was replaced and pumping resumed on February 19, 2000. Problems with the new pump forced a shutdown on March 23, 2000. No pumping in April 2000; a total of 53.6 Kgallons has been pumped from this tank since pumping started in March 1999.

Tank 241-S-106 - Pumping was discontinued on January 3, 2000, to allow the waste levels to stabilize, so waste porosities and final waste volumes can then be calculated to determine whether this tank meets Interim Stabilization criteria.

Tank 241-SX-106 - Pumping was discontinued on January 5, 2000, to allow the waste levels to stabilize, so waste porosities and final waste volumes can then be calculated to determine whether this tank meets Interim Stabilization criteria. It is anticipated that this tank will be Interim Stabilized in May 2000.

Tank 241-U-102 - Pumping commenced January 20, 2000. In April 2000, a total of 1.3 Kgallons was pumped; a total of 26.4 Kgallons has been pumped from this tank since start of pumping in January 2000.

Tank 241-U-103 - Pumping commenced September 26, 1999. In April 2000, a total of 4.3 Kgallons was pumped; a total of 98.0 Kgallons has been pumped from this tank since start of pumping in September 1999.

Tank 241-U-105 - Pumping commenced December 10, 1999. In April 2000, a total of 5.7 Kgallons was pumped; a total of 71.9 Kgallons has been pumped from this tank since start of pumping in December 1999.

Tank 241-U-109 - Pumping commenced March 11, 2000. In April 2000, a total of 11.8 Kgallons was pumped; a total of 24.6 Kgallons has been pumped from this tank since start of pumping in March 2000.

3. Double-Shell Tank 241-SY-101 Waste Level Increase

Tank 241-SY-101 exhibited gas release events due to generation and retention of flammable gas. A mixer pump was installed in the tank in July 1993, which circulates liquid wastes. This prevents gas bubbles from building up at the bottom, and results in venting of small steady gas releases. Since early 1997, the surface level has been rising in spite of regular mixer pump operations.

Resolution Status: On February 11, 1998, the PRC recommended that the DOE-RL declare an Unreviewed Safety Question (USQ) over the continued level growth observed in this tank. The contractor has established a multi-disciplinary team to solve the level growth issues in SY-101. The prime near-term focus is to transfer approximately 100,000 gallons from SY-101. This objective was expanded to transfer approximately 500,000 gallons of waste from SY-101 so that sufficient water could be added to resolve the flammable gas issue.

Final calculated transfer and dilution volumes for level growth remediation, Memo 74B50-00-030, dated March 23, 2000:

Volumes in gallons, rounded to the nearest 500 gallons

<u>Campaign #</u>	<u>Date Campaign Began</u>	<u>Waste Transferred</u>	<u>"Original Waste" Transferred</u>	<u>In-Line Dilution Water</u>	<u>Top Back Dilution</u>	<u>Bottom Back Dilution</u>	<u>Total Back Dilution</u>
#1	Dec. 18, '99	89,500	89,500	84,000	26,000	36,000	62,000
#2	Jan. 27, '00	240,500	230,000	198,000	89,500	150,000	239,500
#3	Feb. 29, '00	286,000	205,500	102,500	36,500	187,000	223,500
Cumulative		616,000	525,000	384,500	152,000	373,000	525,000

Aggressive mixer pump operations were performed to most efficiently mix the dilution water in the tank waste. Once the tank waste is "well mixed," a controlled evaluation period will commence to observe the overall tank waste behavior without running the mixer pump. This controlled Mixer Pump Observation Period (MPOP) began April 3, 2000. The MPOP suspends mixer pump runs (other than an occasional pump bump directed by the Technical Review Group) for a period of approximately 90 days. (Also see Occurrence Report below)

4. RL-LMHC-TANKFARM-1999-0023. Occurrence Report, "Additional Information Regarding Crust Growth in 241-SY-101." Off-Normal Occurrence. Notification: April 9, 1999. Latest Update: April 27, 2000, 1999.

On December 18, 1999, approximately 90,000 gallons of nuclear waste was transferred from tank SY-101 to SY-102 in the first of three planned transfers.

In conjunction with the transfers, water is added to the waste to reduce the concentration of gas generation and gas-retaining chemicals to reduce gas buildup in SY-101 and associated receiving tanks.

The second of the three waste transfers was completed on January 27, 2000.

The third and final phase of transfers was initiated on February 29, and completed March 2, 2000.

On April 3, 2000, a Mixer Pump Observation Period (MPOP) began and will run for a period of approximately 90 days.

This report is being extended pending completion and evaluation of tank activities during the MPOP and resolution of the USQ issues.

5. RP-CHG-TANKFARM-2000-0016. Occurrence Report, "Loss of 241-SY-102 Primary Tank Leak Detection System (USQ)." Unusual Occurrence. Latest Update: March 28, 2000

On February 16, 2000, the SY-102 annulus conductivity probe instrumentation indicated an alarm condition. The annulus continuous alarm monitor (CAM) had been previously taken out of service for maintenance. These conditions caused the Primary Tank Leak Detection System to be inoperable. Limiting Condition for Operation (LCO) states that one of the two primary tank leak detection systems shall be operable.

Immediate efforts were made to replace the annulus stack CAM to restore annulus ventilation. Attempts to reset the annulus conductivity probe were not successful.

Additional time is needed to develop and approve the Root Cause Analysis and Corrective Action Plan.

A Final Report Update will be submitted no later than May 31, 2000.

6. RP-CHG-TANKFARM-2000-0017. Occurrence Report, "Abnormal Radiation Detected at Pit 05C at Tank 241-U-105." Off-Normal Occurrence. Latest Update: April 7, 2000

Abnormal radiation levels were detected at Pit 05C at Tank U-105 during a normal routine survey. No alarming leak detectors were discovered.

On February 23, 2000, a video shoot was taken of the pits while water flushing was performed. This validated that there was a small leak off the pit jumper manifold in the U-A valve pit. This leak was contained within the U-A valve pit and the 05C sluice pit.

U-Farm saltwell transfers were shut down as a precautionary measure. After pumping was stopped and the lines flushed, dose rates on contact with the shielding were 45mR/hr.

Dosimeter information from employees in the vicinity during this time was evaluated; there were no abnormal exposures from the event. All 15 employees were radiation workers.

Causes: The direct cause was failed equipment, and the indirect cause was inattention to detail by personnel because the jumper manifold was tested with a closed valve upstream of the blank connector head.

An improvement opportunity in radiological monitoring during tank pumping operation was identified.

No further evaluation required.

7. RP-CHG-TANKFARM-2000-0023, Occurrence Report, "Failure of 296-P-16 Exhauster for 241-C-105/106 Tanks." Unusual Occurrence, Initial Update: April 24, 2000.

On March 10, 2000, a Loss of Vacuum alarm was received by TMACS. An Operator and HPT responded to the alarm and discovered the P-16 Exhauster was shut down.

An attempt to restart the exhauster resulted in the exhauster running approximately five minutes and again shutting down.

The Washington State Department of Health was notified.

An investigation into causes of the shutdown and development of a Work Plan for troubleshooting commenced.

This update is being submitted in order to allow additional time to perform PAAA screening, Root Cause Analysis and the Corrective Action Plan.

A Final Report will be submitted on or before June 30, 2000.

8. RP-CHG-TANKFARM-2000-0026, Occurrence Report, "AW-102/104 Annulus Continuous Air Monitor Radiation Hi Failure Alarm (USO)." Unusual Occurrence, Notification: March 23, 2000.

On March 22, 2000, a loss of power resulted in a Radiation Hi Failure alarm on the AW-102/104 Continuous Air Monitor (CAM) and the unplanned entry into LCO 3.2.6.

The LCO requires either the annulus conductivity probe system or the annulus CAMs to be operable. Loss of power to the CAMs during maintenance on the separate conductivity probe system resulted in the unplanned entry.

The LCO was exited upon completion of the annulus conductivity probe functional test.

The cross-site transfer in progress was shut down. It was attempted to restore power to the CAM. The power breaker was found tripped. Troubleshooting the loss of power commenced.

Troubleshooting the loss of power to the CAMs continues.

9. RP-CHG-TANKFARM-2000-0034, "241-SY Exhauster Shutdown (USO)." Unusual Occurrence, Notification: April 25, 2000

During performance of the monthly CAM source check of the SY-Tank Farm primary exhauster, the CAM exhibited an unexplained high radiation count alarm while in the test mode, which caused the SY primary exhauster to shutdown on interlock.

This exhauster is required to be operational to prevent the possible accumulation of flammable gas in the SY double-shell tanks. Start-up of the P-28 back-up exhauster was unsuccessful due to a suspected pressure switch problem.

All unnecessary personnel were evacuated from the SY-Tank Farm. Entered action statements per Limiting Condition for Operation (LC) 3.2.1. All saltwell pumps discharging to tank SY-102 were secured and placed in short-term shutdown. No indication of radiation release was detected.

An investigation was initiated to determine the cause of the unexpected high-count alarm. Troubleshooting began on the suspected P-28 pressure switch problem.

10. Changes to the Monthly Report

The appendices have been rearranged to facilitate ease of locating the most current or pertinent information. See Table of Contents.

APPENDIX A
MONTHLY SUMMARY

TABLE A-1. MONTHLY SUMMARY

TANK STATUS

April 30, 2000

	200 EAST AREA	200 WEST AREA	TOTAL
IN SERVICE	25	03	28 (1)
OUT OF SERVICE	66	83	149
SOUND	59	51	110
ASSUMED LEAKER	32	35	67
INTERIM STABILIZED	60	63	123
ISOLATED			
PARTIAL INTERIM	11	30	41
INTRUSION PREVENTION COMPLETE	55	53	108
CONTROLLED, CLEAN, AND STABLE	12	24	36

		WASTE VOLUMES (Kgallons)			SST TANKS	DST TANKS	TOTAL
		200 EAST AREA	200 WEST AREA	TOTAL			
SUPERNATANT							
AGING	Aging waste	1670	0	1670	0	1670	1670
CC	Complexant concentrate waste	3176	772	3948	0	3948	3948
CP	Concentrated phosphate waste	1089	0	1089	0	1089	1089
DC	Dilute complexed waste	54	0	54	1	53	54
DN	Dilute non-complexed waste	2353	597	2950	0	2950	2950
DN/PD	Dilute non-complex/PUREX TRU solid	321	0	321	0	321	321
DN/PT	Dilute non-complex/PFP TRU solids	0	0	0	0	0	0
NCPLX	Non-complexed waste	192	278	470	470	0	470
DSSF	Double-shell slurry feed	5974	168	6142	1071	5071	6142
TOTAL SUPERNATANT		14829	1615	16644	1542	15102	16644
SOLIDS							
	Sludge	6359	6269	12628	11394	1234	12628
	Saltcake	7359	15909	23268	20817	2451	23268
TOTAL SOLIDS		13718	22178	35896	32211	3685	35896
Drainable Interstitial Liquid (DSTs only)(3)		823	212	1035	0	1035	1035
TOTAL WASTE		29370	24205	53575	33753	18787	53575
AVAILABLE SPACE IN TANKS		10430	1029	11459	0	11459	11459
DRAINABLE INTERSTITIAL		2238	2734	4972	3937	1035	4972
DRAINABLE LIQUID REMAINING (2)		2511	2968	5479	5479	(2)	5479

(1) Includes six double-shell tanks on Hydrogen Watch List not currently allowed to receive waste, AN-103, AN-104, AN-105, AW-101, SY-101, and SY-103.

(2) Drainable Liquid Remaining for single-shell tanks only; not applicable for double-shell tanks

(3) Drainable Interstitial Liquid was extracted from DST solids in Table A-5. Total waste for DSTs: Supernate + DIL + Solids.

TABLE A-2. TANK USE SUMMARY

April 30, 2000

TANK FARMS	TANKS AVAILABLE TO RECEIVE WASTE TRANSFERS	SOUND	ASSUMED LEAKER	ISOLATED TANKS			INTERIM TABILIZED TANKS
				PARTIAL INTERIM	INTRUSION PREVENTION COMPLETED	CONTROLLED CLEAN, AND STABLE	
EAST							
A	0	3	3	2	4	0	5
AN	7 (1)	7	0	0	0		0
AP	8	8	0	0	0		0
AW	6 (1)	6	0	0	0		0
AX	0	2	2	1	3		3
AY	2	2	0	0	0		0
AZ	2	2	0	0	0		0
B	0	6	10	0	16		16
BX	0	7	5	0	12	12	12
BY	0	7	5	5	7		10
C	0	9	7	3	13		14
Total	25	59	32	11	55	12	60
WEST							
S	0	11	1	10	2		5
SX	0	5	10	6	9		10
SY	3 (1)	3	0	0	0		0
T	0	9	7	5	11		16
TX	0	10	8	0	18	18	18
TY	0	1	5	0	6	6	6
U	0	12	4	9	7		8
Total	3	51	35	30	53	24	63
TOTAL	28	110	67	41	108	36	123

(1) Six Double-Shell Tanks on the Hydrogen Tank Watch List are not currently receiving waste transfers (AN-103, 104, 105, AW-101, SY-101 and 103).

**TABLE A-3. PUMPING RECORD, LIQUID STATUS AND PUMPABLE
LIQUID REMAINING IN TANK FARMS**

April 30, 2000

TANK FARMS	Waste Volumes (Kgallons)						
	<u>PUMPED THIS MONTH</u>	<u>PUMPED FY TO DATE</u>	<u>CUMULATIVE TOTAL PUMPED 1979 TO DATE</u>	<u>SUPERNATANT LIQUID</u>	<u>DRAINABLE INTERSTITIAL REMAINING</u>	<u>DRAINABLE LIQUID REMAINING</u>	<u>PUMPABLE SST LIQUID REMAINING</u>
EAST							
A	0.0	0.0	150.5	517	161	678	635
AN	N/A	N/A	N/A	3682	437	N/A	N/A
AP	N/A	N/A	N/A	5163	22	N/A	N/A
AW	N/A	N/A	N/A	2777	297	N/A	N/A
AX	0.0	0.0	13.0	386	105	491	455
AY	N/A	N/A	N/A	441	47	N/A	N/A
AZ	N/A	N/A	N/A	1670	20	N/A	N/A
B	0.0	0.0	0.0	15	262	277	203
BX	N/A	0.0	200.2	24	127	N/A	N/A
BY	0.0	0.0	1567.8	0	581	581	498
C	0.0	0.0	103.0	154	179	333	268
Total	0.0	0.0	2034.5	14829	2238	2380	2059
WEST							
S	0.0	30.0	1037.7	192	726	918	817
SX	0.0	14.5	378.8	134	632	766	678
SY	N/A	N/A	N/A	1369	212	N/A	N/A
T	0.0	0.0	245.7	28	225	253	166
TX	N/A	0.0	1205.7	9	285	N/A	N/A
TY	N/A	0.0	29.9	0	53	N/A	N/A
U	23.1	208.9	220.9	83	601	684	615
Total	23.1	253.4	3118.7	1815	2734	2821	2276
TOTAL	23.1	253.4	5153.2	16644	4972	4981	4335

N/A = Not applicable for Double-Shell Tank Farms, and Single-Shell Tank Farms which have been declared Controlled, Clean and Stable (BX, TX, TY).

TABLE A-4. INVENTORY SUMMARY BY TANK FARM

April 30, 2000

SUPERNATANT LIQUID VOLUMES (Kgallons)													SOLIDS VOLUME		
TANK	TOTAL	AVAIL											SALT		
FARM	WASTE	SPACE	AGING	CC	CP	DC	DN	DN/PD	DN/PT	NCPLX	DSSE	TOTAL	SLUDGE	CAKE	TOTAL
EAST															
A	1507	0	0	0	0	0	0	0	0	0	517	517	588	402	990
AN	5430	2550	0	1782	0	0	161	0	0	0	1739	3682	0	1311	1311
AP	5252	3868	0	1394	1089	0	691	0	0	0	1989	5163	0	67	67
AW	4193	2647	0	0	0	0	1113	321	0	0	1343	2777	485	634	1119
AX	834	0	0	0	0	0	0	0	0	0	386	386	26	422	448
AY	751	1209	0	0	0	53	388	0	0	0	0	441	264	0	264
AZ	1804	156	1670	0	0	0	0	0	0	0	0	1670	114	0	114
B	1909	0	0	0	0	0	0	0	0	15	0	15	1211	683	1894
BX	1490	0	0	0	0	0	0	0	0	24	0	24	1259	207	1466
BY	4387	0	0	0	0	0	0	0	0	0	0	0	754	3633	4387
C	1812	0	0	0	0	1	0	0	0	153	0	154	1658	0	1658
Total	28388	10430	1670	2176	1089	54	2353	321	0	182	5974	14828	6258	7383	12718
WEST															
S	5088	0	0	0	0	0	0	0	0	191	1	192	1185	3613	4798
SX	4007	0	0	0	0	0	0	0	0	0	134	134	1064	2943	4007
SY	2391	1029	0	772	0	0	597	0	0	0	0	1369	371	439	810
T	1877	0	0	0	0	0	0	0	0	28	0	28	1703	145	1848
TX	6784	0	0	0	0	0	0	0	0	9	0	9	880	5875	6755
TY	639	0	0	0	0	0	0	0	0	0	0	0	529	110	639
U	3439	0	0	0	0	0	0	0	0	50	33	83	536	2820	3356
Total	24205	1029	0	772	0	0	597	0	0	278	166	1813	6168	15945	22213
TOTAL	52594	11459	1670	2948	1089	54	2950	321	0	470	6140	16641	12427	23304	35621

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TABLE A-5. INVENTORY AND STATUS BY TANK - DOUBLE SHELL-TANKS

April 30, 2000

TANK STATUS							LIQUID VOLUME		SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTE FOR THESE CHANGES
TANK	WAST MATL	TANK INTEGRITY	TANK USE	EQUIVA-	TOTAL	AVAIL.	SUPER- NATANT LIQUID (Kgal)	INTER- STITIAL LIQUID (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
				LENT	WASTE	SPACE										
				WASTE	WASTE	SPACE										
				INCHES	(Kgal)	(Kgal)										
AN TANK FARM STATUS																
AN-101	DN	SOUND	DRCVR	58.5	161	979	161	0	0	0	FM	S	06/30/99	0/ 0/ 0		
AN-102	CC	SOUND	CWHT	383.6	1055	85	968	22	0	67	FM	S	06/30/99	0/ 0/ 0		
AN-103	DSS	SOUND	CWHT	347.6	956	184	499	114	0	343	FM	S	06/30/99	10/29/97		
AN-104	DSSF	SOUND	CWHT	382.5	1052	88	603	112	0	337	FM	S	06/30/99	06/19/98		
AN-105	DSSF	SOUND	CWHT	409.5	1126	14	637	122	0	367	FM	S	06/30/99	01/26/98		
AN-106	CC	SOUND	CWHT	13.8	38	1102	21	4	0	13	FM	S	06/30/99	0/ 0/ 0		
AN-107	CC	SOUND	CWHT	378.9	1042	98	795	62	0	185	FM	S	06/30/99	09/01/98		
7 DOUBLE-SHELL TANKS				TOTALS	6430	2550	3682	437	0	1311						
AP TANK FARM STATUS																
AP-101	DSSF	SOUND	DRCVR	404.7	1113	27	1113	0	0	0	FM	S	05/01/99	0/ 0/ 0		
AP-102	CP	SOUND	GRTFD	396.0	1089	51	1089	0	0	0	FM	S	07/11/99	0/ 0/ 0		
AP-103	CC	SOUND	DRCVR	102.9	283	857	283	0	0	0	FM	S	05/31/96	0/ 0/ 0		
AP-104	CC	SOUND	GRTFD	404.0	1111	29	1111	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-105	DSSF	SOUND	CWHT	350.9	965	175	876	22	0	67	FM	S	06/30/99	0/ 0/ 0	09/27/95	
AP-106	DN	SOUND	DRCVR	227.3	625	515	625	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-107	DN	SOUND	DRCVR	13.8	38	1102	38	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-108	DN	SOUND	DRCVR	10.2	28	1112	28	0	0	0	FM	S	10/13/88	0/ 0/ 0		
8 DOUBLE-SHELL TANKS				TOTALS	5252	3868	5163	22	0	67						
AW TANK FARM STATUS																
AW-101	DSSF	SOUND	CWHT	409.5	1126	14	820	77	0	230	FM	S	06/30/99	03/17/98		
AW-102	DN	SOUND	EVFD	95.6	263	877	227	9	0	27	FM	S	06/30/99	02/02/83		
AW-103	DN/PD	SOUND	DRCVR	186.2	512	628	149	59	269	35	FM	S	06/30/99	0/ 0/ 0		
AW-104	DN	SOUND	DRCVR	406.2	1117	23	886	58	0	173	FM	S	06/30/99	02/02/83		
AW-105	DN/PD	SOUND	DRCVR	155.3	427	713	172	38	217	0	FM	S	06/30/99	0/ 0/ 0		
AW-106	DSSF	SOUND	SRCVR	272.0	748	392	523	56	0	169	FM	S	06/30/99	02/02/83		
6 DOUBLE-SHELL TANKS				TOTALS	4193	2647	2777	297	485	634						

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TABLE A-5. INVENTORY AND STATUS BY TANK - DOUBLE SHELL-TANKS

April 30, 2000

TANK STATUS							LIQUID VOLUME		SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTE FOR THESE CHANGES
TANK	WAST MATL	TANK INTEGRITY	TANK USE	EQUIVA- LENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL. SPACE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAINABLE INTER- STITIAL LIQUID (Kgal)	(DIL removed from solids volumes)		LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
									SLUDGE (Kgal)	SALT CAKE (Kgal)						
<u>AY TANK FARM STATUS</u>																
AY-101	DC	SOUND	DRCVR	53.5	147	833	53	14	80	0	FM	S	06/30/99	12/28/82		
AY-102	DN	SOUND	DRCVR	219.6	604	376	388	32	184	0	FM	S	11/30/99	04/28/81		
2 DOUBLE-SHELL TANKS				TOTALS	751	1209	441	47	264	0						
<u>AZ TANK FARM STATUS</u>																
AZ-101	AGING	SOUND	CWHT	307.6	846	134	800	7	39	0	FM	S	06/30/99	06/18/83		
AZ-102	AGING	SOUND	DRCVR	348.4	958	22	870	13	75	0	FM	S	06/30/99	10/24/84		
2 DOUBLE-SHELL TANKS				TOTALS	1804	156	1670	20	114	0						
<u>SY TANK FARM STATUS</u>																
SY-101	CC	SOUND	CWHT	354.9	976	164	391	146	0	439	FM	S	06/30/99	04/12/89		(a)
SY-102	DN	SOUND	DRCVR	242.9	668	472	597	11	60	0	FM	S	06/30/99	04/29/81		
SY-103	CC	SOUND	CWHT	271.6	747	393	381	55	311	0	FM	S	06/30/99	10/01/85		
3 DOUBLE-SHELL TANKS				TOTALS	2391	1029	1369	212	371	439						
GRAND TOTAL					18821	11459	15102	1036	1234	2450						

Note: +/- 1 Kgal differences are the result of computer rounding

Available Space Calculations Used in this DocumentTank Farms

AN, AP, AW, SY 1,140 Kgal
 AY, AZ (Aging Waste) 980 Kgal

Notes: Drainable porosity measurements for DIL have been updated to 25% for saltcake and 15% for sludge, per HNF-2978, Rev. 1, "Updated Pumpable Liquid Volume Estimates and Jet Pump Durations for Interim Stabilization of Remaining Single-Shell Tanks," September 1999. These porosity values also apply to DSTs. Also, DIL has been extracted from the DST solids waste volumes in this table. For this report: Supernate + DIL + Solids = Total Waste for DSTs

(a) The first transfer of waste (89,500 gallons) from SY-101 to SY-102 was completed December 19, 1999. The second (240,000 gallons) of the three waste transfers was completed January 27, 2000. The third transfer phase began February 29, 2000, and was completed in March; 265,000 gallons were transferred.

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TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

April 30, 2000

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS																		
TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
A TANK FARM STATUS																		
A-101	DSSF	SOUND	/PI	891	508	95	0.0	0.0	603	587	3	380	P	F	09/30/99	08/21/86		
A-102	DSSF	SOUND	IS/PI	41	4	8	0.0	39.5	12	4	15	22	P	FP	07/27/89	07/20/89		
A-103	DSSF	ASMD LKR	IS/IP	371	5	45	0.0	111.0	50	43	366	0	-	FP	06/03/88	12/28/88		
A-104	NCPLX	ASMD LKR	IS/IP	28	0	4	0.0	0.0	4	0	28	0	M	PS	01/27/78	06/25/86		
A-105	NCPLX	ASMD LKR	IS/IP	51	0	0	0.0	0.0	0	0	51	0	P	MP	06/30/99	08/20/88		
A-106	CP	SOUND	IS/IP	125	0	9	0.0	0.0	9	1	125	0	P	M	09/07/82	08/19/86		
6 SINGLE-SHELL TANKS TOTALS				1507	517	161	0.0	150.5	678	635	588	402						
AX TANK FARM STATUS																		
AX-101	DSSF	SOUND	/PI	684	386	74	0.0	0.0	460	444	3	295	P	F	09/30/99	08/18/87		
AX-102	CC	ASMD LKR	IS/IP	30	0	7	0.0	13.0	7	0	7	23	F	S	06/30/99	06/05/89		
AX-103	CC	SOUND	IS/IP	112	0	23	0.0	0.0	23	11	8	104	F	S	06/30/99	08/13/87		
AX-104	NCPLX	ASMD LKR	IS/IP	8	0	1	0.0	0.0	1	0	8	0	P	M	06/30/99	08/18/87		
4 SINGLE-SHELL TANKS TOTALS:				834	386	105	0.0	13.0	491	455	26	422						
B TANK FARM STATUS																		
B-101	NCPLX	ASMD LKR	IS/IP	113	0	24	0.0	0.0	24	17	0	113	P	F	06/30/99	05/19/83		
B-102	NCPLX	SOUND	IS/IP	32	4	7	0.0	0.0	11	4	0	28	P	F	06/30/99	08/22/85		
B-103	NCPLX	ASMD LKR	IS/IP	59	0	11	0.0	0.0	11	3	0	59	F	F	06/30/99	10/13/88		
B-104	NCPLX	SOUND	IS/IP	371	1	45	0.0	0.0	46	42	309	61	M	M	06/30/99	10/13/88		
B-105	NCPLX	ASMD LKR	IS/IP	158	0	20	0.0	0.0	20	16	28	130	P	MP	06/30/99	05/19/88		
B-106	NCPLX	SOUND	IS/IP	117	1	25	0.0	0.0	26	19	0	116	F	F	02/29/00	02/28/85		
B-107	NCPLX	ASMD LKR	IS/IP	165	1	22	0.0	0.0	23	19	93	71	M	M	06/30/99	02/28/85		
B-108	NCPLX	SOUND	IS/IP	94	0	15	0.0	0.0	15	11	53	41	F	F	06/30/99	05/10/85		
B-109	NCPLX	SOUND	IS/IP	127	0	21	0.0	0.0	21	17	63	64	M	M	06/30/99	04/02/85		
B-110	NCPLX	ASMD LKR	IS/IP	246	1	27	0.0	0.0	28	20	245	0	MP	MP	02/28/85	03/17/88		
B-111	NCPLX	ASMD LKR	IS/IP	237	1	23	0.0	0.0	24	29	236	0	F	F	06/28/85	06/26/85		
B-112	NCPLX	ASMD LKR	IS/IP	33	3	4	0.0	0.0	7	3	30	0	F	F	05/31/85	05/29/85		
B-201	NCPLX	ASMD LKR	IS/IP	29	1	4	0.0	0.0	5	1	28	0	M	M	04/28/82	11/12/86	06/23/95	
B-202	NCPLX	SOUND	IS/IP	27	0	4	0.0	0.0	4	0	27	0	P	M	05/31/85	05/29/85	06/15/95	
B-203	NCPLX	ASMD LKR	IS/IP	51	1	5	0.0	0.0	6	1	50	0	PM	PM	05/31/84	11/13/86		
B-204	NCPLX	ASMD LKR	IS/IP	50	1	5	0.0	0.0	6	1	49	0	P	M	05/31/84	10/22/87		
16 SINGLE-SHELL TANKS TOTALS				1909	15	262	0.0	0.0	277	203	1211	683						

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TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

April 30, 2000

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
BX TANK FARM STATUS																		
BX-101	NCPLX	ASMD LKR	IS/IP/CCS	43	1	4	0.0	0.0	5	1	42	0	P	M	04/28/82	11/24/88	11/10/94	
BX-102	NCPLX	ASMD LKR	IS/IP/CCS	96	0	0	0.0	0.0	0	0	96	0	P	M	04/28/82	09/18/85		
BX-103	NCPLX	SOUND	IS/IP/CCS	71	9	4	0.0	0.0	13	9	62	0	P	F	11/29/83	10/31/86	10/27/94	
BX-104	NCPLX	SOUND	IS/IP/CCS	93	3	4	0.0	17.4	7	3	90	0	F	F	02/29/00	09/21/89		
BX-105	NCPLX	SOUND	IS/IP/CCS	51	5	4	0.0	15.0	9	5	46	0	F	S	06/30/99	10/23/86		
BX-106	NCPLX	SOUND	IS/IP/CCS	38	0	4	0.0	14.0	4	0	38	0	MP	PS	08/01/95	05/19/88	07/17/95	
BX-107	NCPLX	SOUND	IS/IP/CCS	345	1	36	0.0	23.1	37	33	344	0	MP	P	09/18/90	09/11/90		
BX-108	NCPLX	ASMD LKR	IS/IP/CCS	26	0	4	0.0	0.0	4	0	26	0	M	PS	07/31/79	05/05/94		
BX-109	NCPLX	SOUND	IS/IP/CCS	193	0	25	0.0	8.2	25	20	193	0	FP	P	09/17/90	09/11/90		
BX-110	NCPLX	ASMD LKR	IS/IP/CCS	207	3	28	0.0	1.5	31	26	133	71	MP	M	06/30/99	07/15/94	10/13/94	
BX-111	NCPLX	ASMD LKR	IS/IP/CCS	162	1	5	0.0	116.9	6	2	25	136	M	M	06/30/99	05/19/94	02/28/95	
BX-112	NCPLX	SOUND	IS/IP/CCS	165	1	9	0.0	4.1	10	7	164	0	FP	P	09/17/90	09/11/90		
12 SINGLE-SHELL TANKS				TOTALS:	1490	24	127	0.0	200.2	151	106	1259	207					
BY TANK FARM STATUS																		
BY-101	NCPLX	SOUND	IS/IP	387	0	28	0.0	35.8	28	24	109	278	P	M	05/30/84	09/19/89		
BY-102	NCPLX	SOUND	IS/PI	277	0	40	0.0	159.0	40	33	0	277	MP	M	05/01/95	09/11/87	04/11/95	
BY-103	NCPLX	ASMD LKR	IS/PI	400	0	58	0.0	95.9	58	53	9	391	MP	M	06/30/99	09/07/89	02/24/97	
BY-104	NCPLX	SOUND	IS/IP	326	0	40	0.0	329.5	40	36	150	176	P	M	06/30/99	04/27/83		
BY-105	NCPLX	ASMD LKR	/PI	503	0	121	0.0	0.0	121	111	48	455	P	MP	08/31/99	07/01/86		
BY-106	NCPLX	ASMD LKR	/PI	562	0	132	0.0	63.7	132	119	84	478	P	MP	12/31/98	11/04/82		
BY-107	NCPLX	ASMD LKR	IS/IP	266	0	39	0.0	56.4	39	35	40	226	P	MP	06/30/99	10/15/86		
BY-108	NCPLX	ASMD LKR	IS/IP	228	0	33	0.0	27.5	33	26	154	74	MP	M	04/28/82	10/15/86		
BY-109	NCPLX	SOUND	IS/PI	290	0	31	0.0	157.1	31	26	57	233	F	PS	07/08/87	06/18/97		
BY-110	NCPLX	SOUND	IS/IP	398	0	21	0.0	213.3	21	17	103	295	M	S	09/10/79	07/26/84		
BY-111	NCPLX	SOUND	IS/IP	459	0	14	0.0	313.2	14	6	0	459	P	M	06/30/99	10/31/86		
BY-112	NCPLX	SOUND	IS/IP	291	0	24	0.0	116.4	24	12	0	291	P	M	06/30/99	04/14/88		
12 SINGLE-SHELL TANKS				TOTALS:	4387	0	581	0.0	1567.8	581	498	754	3633					

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TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

April 30, 2000

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					SEE FOOTNOTES	
TANK	WASTE MAT'L	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE (Kgal)	INTER- STIT. (Kgal)	THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO		FOR THESE CHANGES
C TANK FARM STATUS																			
C-101	NCPLX	ASMD LKR	IS/IP	88	0	4	0.0	0.0	4	0	88	0	M	M	11/29/83	11/17/87			
C-102	DC	SOUND	IS/IP	316	0	62	0.0	46.7	62	55	316	0	F	FP	09/30/95	06/18/96	08/24/96		
C-103	NCPLX	SOUND	/PI	198	79	18	0.0	0.0	97	83	119	0	F	S	12/31/88	07/28/87			
C-104	CC	SOUND	IS/IP	263	0	0	0.0	0.0	0	0	263	0	FP	P	02/01/00	07/25/90			
C-105	NCPLX	SOUND	IS/PI	134	2	10	0.0	0.0	12	8	132	0	F	S	02/28/00	08/05/94	08/30/95		
C-106	NCPLX	SOUND	/PI	74	68	0	0.0	0.0	68	62	6	0	F	PS	10/31/99	08/05/94	08/08/94		
C-107	DC	SOUND	IS/IP	257	0	30	0.0	40.8	30	25	257	0	F	S	08/30/99	00/00/00			
C-108	NCPLX	SOUND	IS/IP	66	0	4	0.0	0.0	4	0	66	0	M	S	02/24/84	12/05/74	11/17/84		
C-109	NCPLX	SOUND	IS/IP	66	4	4	0.0	0.0	8	4	62	0	M	PS	11/29/83	01/30/76			
C-110	DC	ASMD LKR	IS/IP	178	1	37	0.0	15.5	38	30	177	0	F	FMP	06/14/95	08/12/86	05/23/95		
C-111	NCPLX	ASMD LKR	IS/IP	57	0	4	0.0	0.0	4	0	57	0	M	S	04/28/82	02/25/70	02/02/95		
C-112	NCPLX	SOUND	IS/IP	104	0	6	0.0	0.0	6	1	104	0	M	PS	09/18/90	09/18/90			
C-201	NCPLX	ASMD LKR	IS/IP	2	0	0	0.0	0.0	0	0	2	0	P	MP	03/31/82	12/02/86			
C-202	EMPTY	ASMD LKR	IS/IP	1	0	0	0.0	0.0	0	0	1	0	P	M	01/19/79	12/09/86			
C-203	NCPLX	ASMD LKR	IS/IP	5	0	0	0.0	0.0	0	0	5	0	P	MP	04/28/82	12/09/86			
C-204	NCPLX	ASMD LKR	IS/IP	3	0	0	0.0	0.0	0	0	3	0	P	MP	04/28/82	12/09/86			
16 SINGLE-SHELL TANKS TOTALS:				1812	154	179	0.0	103.0	333	268	1658	0							
S TANK FARM STATUS																			
S-101	NCPLX	SOUND	/PI	427	12	83	0.0	0.0	95	80	211	204	F	PS	12/31/88	03/18/88			
S-102	DSSF	SOUND	/PI	495	0	93	0.0	53.6	93	89	105	390	P	FP	03/31/00	03/18/88			(d)
S-103	DSSF	SOUND	IS/PI	237	1	45	0.0	23.9	46	39	9	227	M	S	04/30/00	06/01/89	01/28/00		(f)
S-104	NCPLX	ASMD LKR	IS/IP	294	1	34	0.0	0.0	35	31	293	0	M	M	12/20/84	12/12/84			
S-105	NCPLX	SOUND	IS/IP	456	0	42	0.0	114.3	42	33	2	454	MP	S	09/26/88	04/12/88			
S-106	NCPLX	SOUND	/PI	479	53	85	0.0	203.6	138	129	0	426	P	FP	04/31/00	03/17/89	01/28/00		(e)
S-107	NCPLX	SOUND	/PI	376	14	61	0.0	0.0	75	61	293	69	F	PS	08/30/99	03/12/87			
S-108	NCPLX	SOUND	IS/PI	432	0	0	0.0	199.8	0	0	5	427	P	MP	10/01/99	03/12/87	12/03/96		
S-109	NCPLX	SOUND	/PI	507	0	93	0.0	111.0	93	83	13	494	F	PS	09/30/75	12/31/86			
S-110	NCPLX	SOUND	IS/PI	390	0	30	0.0	203.1	30	27	131	259	F	PS	05/14/92	03/12/87	12/11/96		
S-111	NCPLX	SOUND	/PI	472	111	79	0.0	3.3	190	175	117	244	P	FP	09/30/99	08/10/89			
S-112	NCPLX	SOUND	/PI	523	0	81	0.0	125.1	81	70	6	517	P	FP	12/31/88	03/24/87			
12 SINGLE-SHELL TANKS TOTALS:				5088	192	726	0.0	1037.7	918	817	1185	3711							

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TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

April 30, 2000

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
SX TANK FARM STATUS																		
SX-101	DC	SOUND	/PI	448	0	112	0.0	0.0	112	99	0	448	P	FP	06/30/99	03/10/88		
SX-102	DSSF	SOUND	/PI	514	134	95	0.0	0.0	229	216	0	380	P	M	03/31/00	01/07/88		
SX-103	NCPLX	SOUND	/PI	634	0	147	0.0	0.0	147	132	115	519	F	S	06/30/99	12/17/87		
SX-104	DSSF	ASMD LKR	IS/PI	446	0	48	0.0	231.3	48	44	136	310	F	S	04/30/99	09/08/88	02/04/98	(a)
SX-105	DSSF	SOUND	/PI	637	0	153	0.0	0.0	153	141	66	572	P	F	06/30/99	06/15/88		
SX-106	NCPLX	SOUND	/PI	371	0	36	0.0	147.5	36	27	0	371	F	PS	11/30/99	06/01/88		(b)
SX-107	NCPLX	ASMD LKR	IS/IP	104	0	6	0.0	0.0	6	0	104	0	P	M	04/28/82	03/08/87		
SX-108	NCPLX	ASMD LKR	IS/IP	87	0	0	0.0	0.0	0	0	87	0	P	M	12/31/83	03/08/87		
SX-109	NCPLX	ASMD LKR	IS/IP	250	0	0	0.0	0.0	0	0	75	175	P	M	06/30/99	05/21/86		
SX-110	NCPLX	ASMD LKR	IS/IP	62	0	0	0.0	0.0	0	0	62	0	M	PS	10/06/76	02/20/87		
SX-111	NCPLX	ASMD LKR	IS/IP	122	0	8	0.0	0.0	8	3	122	0	M	PS	06/30/99	06/09/94		
SX-112	NCPLX	ASMD LKR	IS/IP	106	0	6	0.0	0.0	6	1	106	0	P	M	06/30/99	03/10/87		
SX-113	NCPLX	ASMD LKR	IS/IP	31	0	0	0.0	0.0	0	0	31	0	P	M	06/30/99	03/18/88		
SX-114	NCPLX	ASMD LKR	IS/IP	181	0	21	0.0	0.0	21	15	147	34	P	M	04/28/82	02/26/87		
SX-115	NCPLX	ASMD LKR	IS/IP	12	0	0	0.0	0.0	0	0	12	0	P	M	04/28/82	03/31/88		
15 SINGLE-SHELL TANKS				TOTALS:	4007	134	632	0.0	378.8	766	678	1064	2809					

T TANK FARM STATUS

T-101	NCPLX	ASMD LKR	IS/PI	102	1	20	0.0	25.3	21	16	37	64	F	S	06/30/99	04/07/83		
T-102	NCPLX	SOUND	IS/IP	32	13	3	0.0	0.0	16	11	19	0	P	FP	06/31/84	06/28/88		
T-103	NCPLX	ASMD LKR	IS/IP	27	4	3	0.0	0.0	7	3	23	0	F	FP	11/29/83	07/03/84		
T-104	NCPLX	SOUND	IS/PI	343	0	51	0.0	149.5	51	27	343	0	P	MP	04/30/00	06/29/88	10/07/98	
T-105	NCPLX	SOUND	IS/IP	98	0	5	0.0	0.0	5	0	98	0	P	F	06/29/87	05/14/87		
T-106	NCPLX	ASMD LKR	IS/IP	21	2	0	0.0	0.0	2	2	19	0	P	FP	04/28/82	06/29/88		
T-107	NCPLX	ASMD LKR	IS/PI	173	0	34	0.0	11.0	34	20	173	0	P	FP	05/31/96	07/12/84	05/09/96	
T-108	NCPLX	ASMD LKR	IS/IP	44	0	5	0.0	0.0	5	0	21	23	P	M	06/30/99	07/17/84		

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TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

April 30, 2000

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			LAST		SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
T-109	NCPLX	ASMD LKR	IS/IP	58	0	10	0.0	0.0	10	3	0	58	M	M	06/30/99	02/25/83		
T-110	NCPLX	SOUND	IS/PI	369	0	55	0.0	50.3	55	41	369	0	P	FP	04/30/00	07/12/84	10/07/99	
T-111	NCPLX	ASMD LKR	IS/PI	446	0	38	0.0	9.6	38	35	446	0	P	FP	04/18/94	04/13/94	02/13/95	
T-112	NCPLX	SOUND	IS/IP	67	7	4	0.0	0.0	11	7	60	0	P	FP	04/28/82	08/01/84		
T-201	NCPLX	SOUND	IS/IP	29	1	4	0.0	0.0	5	1	28	0	M	PS	05/31/78	04/15/86		
T-202	NCPLX	SOUND	IS/IP	21	0	3	0.0	0.0	3	0	21	0	FP	P	07/12/81	07/06/89		
T-203	NCPLX	SOUND	IS/IP	35	0	5	0.0	0.0	5	0	35	0	M	PS	01/31/78	06/03/89		
T-204	NCPLX	SOUND	IS/IP	38	0	5	0.0	0.0	5	0	38	0	FP	P	07/22/81	08/03/89		
16 SINGLE-SHELL TANKS TOTALS:				1877	28	225	0.0	245.7	253	166	1704	145						
TX TANK FARM STATUS																		
TX-101	NCPLX	SOUND	IS/IP/CCS	87	3	8	0.0	0.0	11	7	74	10	F	P	06/30/99	10/24/85		
TX-102	NCPLX	SOUND	IS/IP/CCS	217	0	27	0.0	94.4	27	16	0	217	M	S	06/31/84	10/31/85		
TX-103	NCPLX	SOUND	IS/IP/CCS	157	0	18	0.0	66.3	18	11	0	157	F	S	06/30/99	10/31/85		
TX-104	NCPLX	SOUND	IS/IP/CCS	65	5	9	0.0	3.6	14	9	23	37	F	FP	06/30/99	10/16/84		
TX-105	NCPLX	ASMD LKR	IS/IP/CCS	609	0	25	0.0	121.5	25	14	0	609	M	PS	08/22/77	10/24/89		
TX-106	NCPLX	SOUND	IS/IP/CCS	341	0	37	0.0	134.6	37	30	0	341	M	S	06/30/99	10/31/85		
TX-107	NCPLX	ASMD LKR	IS/IP/CCS	36	1	6	0.0	0.0	7	1	8	27	FP	FP	06/30/99	10/31/85		
TX-108	NCPLX	SOUND	IS/IP/CCS	134	0	8	0.0	13.7	8	1	6	128	P	FP	06/30/99	09/12/89		
TX-109	NCPLX	SOUND	IS/IP/CCS	384	0	6	0.0	72.3	6	2	384	0	F	PS	06/30/99	10/24/89		
TX-110	NCPLX	ASMD LKR	IS/IP/CCS	462	0	14	0.0	115.1	14	10	37	425	M	PS	06/30/99	10/24/89		
TX-111	NCPLX	SOUND	IS/IP/CCS	370	0	10	0.0	96.4	10	6	43	327	M	PS	06/30/99	09/12/89		
TX-112	NCPLX	SOUND	IS/IP/CCS	649	0	26	0.0	94.0	26	21	0	649	P	PS	05/30/83	11/19/87		
TX-113	NCPLX	ASMD LKR	IS/IP/CCS	607	0	18	0.0	19.2	18	14	183	424	M	PS	06/30/99	04/11/83	09/23/84	
TX-114	NCPLX	ASMD LKR	IS/IP/CCS	535	0	17	0.0	104.3	17	11	4	531	M	PS	06/30/99	04/11/83	02/17/95	
TX-115	NCPLX	ASMD LKR	IS/IP/CCS	568	0	25	0.0	99.1	25	15	0	568	M	S	06/30/99	06/15/88		
TX-116	NCPLX	ASMD LKR	IS/IP/CCS	631	0	21	0.0	23.8	21	17	68	563	M	PS	06/30/99	10/17/89		
TX-117	NCPLX	ASMD LKR	IS/IP/CCS	626	0	10	0.0	54.3	10	5	29	597	M	PS	06/30/99	04/11/83		
TX-118	NCPLX	SOUND	IS/IP/CCS	266	0	0	0.0	89.1	0	0	21	265	F	S	02/01/00	12/19/79		
18 SINGLE-SHELL TANKS TOTALS:				6764	9	285	0.0	1205.7	294	190	880	5875						

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TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

April 30, 2000

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUM		VOLUME DETERMINATION			PHOTOS/VIDEOS		SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATE LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	
TY TANK FARM STATUS																		
TY-101	NCPLX	ASMD LKR	IS/IP/CCS	118	0	2	0.0	8.2	2	0	72	48	P	F	06/30/99	06/22/89		
TY-102	NCPLX	SOUND	IS/IP/CCS	64	0	12	0.0	6.6	12	5	0	64	P	FP	06/28/82	07/07/87		
TY-103	NCPLX	ASMD LKR	IS/IP/CCS	162	0	20	0.0	11.5	20	16	162	0	P	FP	07/09/82	06/22/89		
TY-104	NCPLX	ASMD LKR	IS/IP/CCS	43	0	4	0.0	0.0	4	0	43	0	P	FP	06/27/90	11/03/87		
TY-105	NCPLX	ASMD LKR	IS/IP/CCS	231	0	12	0.0	3.6	12	10	231	0	P	M	04/28/82	09/07/89		
TY-106	NCPLX	ASMD LKR	IS/IP/CCS	21	0	3	0.0	0.0	3	0	21	0	P	M	06/30/99	06/22/89		
8 SINGLE-SHELL TANKS TOTALS:				638	0	53	0.0	29.9	53	31	529	110						
U TANK FARM STATUS																		
U-101	NCPLX	ASMD LKR	IS/IP	25	3	3	0.0	0.0	6	2	22	0	P	MP	04/28/82	06/19/79		
U-102	NCPLX	SOUND	/PI	367	0	71	1.3	26.4	71	67	43	314	P	MP	12/31/98	06/08/89	(h)	
U-103	NCPLX	SOUND	/PI	440	0	21	4.3	98.0	21	17	12	428	P	FP	10/31/99	09/13/88	(i)	
U-104	NCPLX	ASMD LKR	IS/IP	122	0	0	0.0	0.0	0	0	79	43	P	MP	06/30/99	06/10/89		
U-105	NCPLX	SOUND	/PI	367	0	52	5.7	71.9	52	48	32	335	FM	PS	01/31/00	07/07/88	(c)	
U-106	NCPLX	SOUND	/PI	226	15	53	0.0	0.0	68	56	0	211	F	PS	12/31/98	07/07/88		
U-107	DSSF	SOUND	/PI	408	33	92	0.0	0.0	125	115	15	380	F	S	12/31/98	10/27/86		
U-108	NCPLX	SOUND	/PI	468	24	108	0.0	0.0	132	124	29	415	F	S	12/31/98	09/12/84		
U-109	NCPLX	SOUND	/PI	446	0	97	11.8	24.6	97	93	35	411	F	F	05/31/99	07/07/88	(g)	
U-110	NCPLX	ASMD LKR	IS/PI	186	0	18	0.0	0.0	18	14	186	0	M	M	12/30/84	12/11/84		
U-111	DSSF	SOUND	/PI	329	0	80	0.0	0.0	80	71	26	303	PS	FPS	12/31/98	06/23/88		
U-112	NCPLX	ASMD LKR	IS/IP	49	4	4	0.0	0.0	8	4	45	0	P	MP	02/10/84	06/03/89		
U-201	NCPLX	SOUND	IS/IP	5	1	1	0.0	0.0	2	1	4	0	M	S	06/15/79	06/08/89		
U-202	NCPLX	SOUND	IS/IP	5	1	1	0.0	0.0	2	1	4	0	M	S	06/15/79	06/08/89		
U-203	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	1	2	0	M	S	06/15/79	06/13/89		
U-204	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	1	2	0	M	S	06/15/79	06/13/89		
16 SINGLE-SHELL TANKS TOTALS:				3439	83	601	23.1	220.9	684	615	536	2820						
GRAND TOTAL				33779	1542	3967	23.1	5153.2	5499	4882	11420	20817						

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TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

April 30, 2000

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

FOOTNOTES:

Total Waste is calculated as the sum of Sludge and Saltcake plus Supernate. The category "Interim Isolated (II) was changed to Intrusion Prevention (IP) in June 1993. Stabilization information from WHC-SD-RE-TI-178 SST STABILIZATION RECORD, latest revision, or SST Stabilization or Cognizant Engineer

Porosity values are now 25% for saltcake and 15% for sludge, per HNF-2978, Rev. 1, "Updated Pumpable Liquid Volume Estimates and Jet Pump Durations for Interim Stabilization of Remaining Single-Shell Tanks," September 1999.

(a) SX-104 Following information from Cognizant Engineer

This tank was Interim Stabilized April 26, 2000, based on major equipment failure.

(b) SX-106 Following information from Cognizant Engineer

Pumping was discontinued on January 5, 2000, to allow the waste levels to stabilize, so waste porosities and final waste volumes can then be calculated to determine whether this tank meets Interim Stabilization criteria.

(c) U-106 Following information from Cognizant Engineer.

Saltwell pumping began December 10, 1999. The waste is pumped directly to SY-102. Pumping was suspended on March 7, 2000, due to pump failure, which was repaired in April.

Total Waste: 367.0 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial Liquid: 62.1 Kgal
Pumped this month: 5.7 Kgal
Total Pumped: 71.9 Kgal
Drainable Liquid Remaining: 52.1 Kgal
Pumpable Liquid Remaining: 48.1 Kgal
Sludge: 32.0 Kgal
Saltcake: 335.0 Kgal

In April 2000, a total of 7,269 gal of fluid was removed, and a total of 1,592 gal of water was added for pump priming/equipment flushes, for a net removal of 5,667 gal of waste. Also, 12,549 gal of water were used as dilution and 550 gal of water were used for transfer line flushes.

Remaining volumes are based on the original estimated volumes in HNF-2978, Rev. 1.

TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

April 30, 2000

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENTS

FOOTNOTES:

(d) S-102 Following information from Cognizant Engineer

Pumping commenced March 18, 1999. The waste is pumped directly to SY-102. Pumping stopped on November 17, 1999, when problems with the pump developed. Pumping resumed on February 19, 2000, after the pump was replaced. Problems with the new pump forced a shutdown on March 23, 2000. No pumping in April 2000.

Total Waste: 495.4 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial: 93.2 Kgal
Pumped this month: 0.0 Kgal
Total Pumped: 53.6 Kgal
Drainable Liquid Remaining: 93.2 Kgal
Pumpable Liquid Remaining: 88.8 Kgal
Sludge: 105.0 Kgal
Saltcake: 390.4 Kgal

In March 2000, a total of 9,118 gal of fluid was removed with 1,622 gal of water added by flushes/priming for a net removal of 7,496 gal of tank waste. In addition, 19,314 gal of dilution water and 2,441 gal of water were added for transfer line flushes. No pumping in April 2000.

Remaining volumes are based on the original estimated volumes in HNF-2978, Rev. 1.

(e) S-106 Pumping was discontinued on January 3, 2000, to allow the waste levels to stabilize, so waste porosities and final waste volumes can then be calculated to determine whether this tank meets Interim Stabilization criteria.

(f) S-103 This tank was Interim Stabilized April 18, 2000.

(g) U-109 Following information from Cognizant Engineer

Pumping began March 11, 2000. Remaining volumes are based on the original estimated volumes in HNF-2978, Rev. 1.

Tank Waste: 446.0 Kgal
Supernate: 0.0 Kgal
Drainable Interstitial: 97.4 Kgal
Pumped this month: 11.6 Kgal
Total Pumped: 24.6 Kgal
Drainable Liquid Remaining: 97.4 Kgal
Pumpable Liquid Remaining: 93.4 Kgal
Sludge: 35.0 Kgal
Saltcake: 411.0 Kgal

During April 2000, a total of 12,542 gal of fluid was removed with 752 gal of water added by pump priming/equipment flushes, for a net removal of 11,790 gal of tank waste. In addition, 15,168 gal of dilution water and 850 gal of water were used for transfer line flushes.

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TABLE A-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

April 30, 2000

THESE VOLUMES ARE THE RESULT OF ENGINEERING CALCULATIONS AND MAY NOT AGREE WITH SURFACE LEVEL MEASUREMENT

FOOTNOTES:

(h) U-102 Following information from Cognizant Engineer

Pumping began in this tank on January 20, 2000.

Total Waste: 367.0 Kgal

Supernate: 0.0 Kgal

Drainable Interstitial Liquid: 70.9 Kgal

Pumped this Month: 1.3 Kgal

Total Pumped: 26.4 Kgal

Drainable Liquid Remaining: 70.6 Kgal

Pumpable Liquid Remaining: 66.6 Kgal

Sludge: 43.0 Kgal

Saltcake: 314.0 Kgal

During April 2000, a total of 1,311 gal of fluid was removed and a total of 18 gal of water was added by pump priming/equipment flushes, for a net removal of 1,293 gal of tank waste. In addition, 3,624 gal of water were used as dilution and 1,667 gal of water were used for transfer line flushes.

Remaining volumes are based on the original estimated volumes in HNF-2978, Rev. 1.

(i) U-103 Following information from Cognizant Engineer.

Saltwell pumping commenced September 26, 1999. The waste is pumped directly to SY-102.

Total Waste: 440.0 Kgal

Supernate: 0.0 Kgal

Drainable Interstitial Liquid: 21.0 Kgal

Pumped this month: 4.3 Kgal

Total Pumped: 96.0 Kgal

Drainable Liquid Remaining: 21.0 Kgal

Pumpable Liquid Remaining: 17.0 Kgal

Sludge: 12.0 Kgal

Saltcake: 428.0 Kgal

In April 2000, a total of 6,139 gal of fluid was removed and 1,796 gal of water added for priming/flushes, for a net removal of 4,343 gal of waste. In addition, 15,593 gal of water were used as dilution and 3,185 gal of water were used for transfer line flushes.

Remaining volumes are based on the original estimated volumes in HNF-2978, Rev. 1.

APPENDIX B
PERFORMANCE SUMMARY

TABLE B-1. SUMMARY OF WASTE TRANSACTIONS IN THE DOUBLE-SHELL TANK (DST) SYSTEM

April 30, 2000

ALL VOLUMES IN KGALS

- The DST system received waste additions from SST Stabilization in April.
- There was a net change of -664,000 gallons in the DST system for April 2000.
- The total DST Inventory as of April 30, 2000 was 19,821 million gallons.
- There was no Saltwell Liquid (SWL) pumped to the East Area DSTs in April.
- There was -80 Kgals of Saltwell Liquid (SWL) pumped to the West Area DSTs (102-SY) in April.
- The SWL numbers are preliminary and are subject to change once cognizant engineers do a validation, the volumes reported contain actual waste volume plus any water added for dilution and transfer line flushes.
- Evaporator Campaign 2000-1 commenced in April. Evaporator 242-A achieved a Waste Volume Reduction (WVR) of -641,000 gallons in April. The WVR for all of campaign 2000-1 was -682,000 gallons, however the campaign was conducted between April 20th & May 5th; the additional WVR of campaign 2000-1 will not show up until the May report.

APRIL 2000 DST WASTE RECEIPTS						
FACILITY GENERATIONS		OTHER GAINS ASSOCIATED WITH			OTHER LOSSES ASSOCIATED WITH	
SWL (West)	+60 Kgal (28Y)	SLURRY	+1 Kgal	SLURRY	-1 Kgal	
242-A (Seal H2O)	+15 Kgal (2AW)	CONDENSATE	+0 Kgal	CONDENSATE	-5 Kgal	
Tank Farms	+1 Kgal (1AN)	INSTRUMENTATION	+3 Kgal	INSTRUMENTATION	-9 Kgal	
TOTAL	+76 Kgal	UNKNOWN	+0 Kgal	UNKNOWN	-8 Kgal	
		TOTAL	+4 Kgal	TOTAL	-23 Kgal	

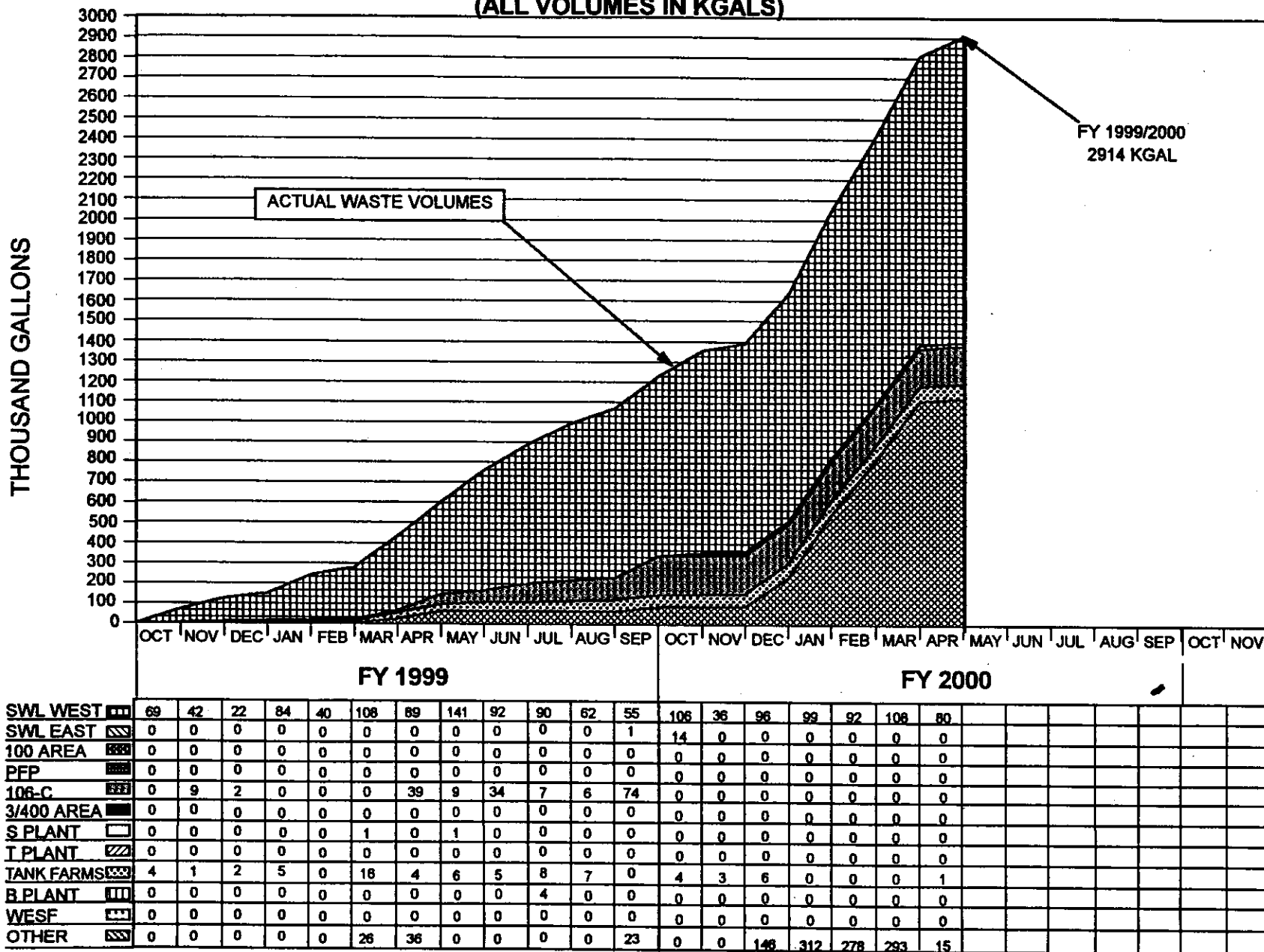
	ACTUAL DST WASTE RECEIPTS	PROJECTED DST WASTE RECEIPTS	MISC. DST CHANGES (+/-)	WVR	NET DST CHANGE	TOTAL DST VOLUME
OCT99	124	127	-19	0	106	19096
NOV99	39	209	-5	0	34	19132
DEC99	248	173	-17	0	231	19363
JAN00	411	148	-104	0	307	19670
FEB00	360	482	-29	0	331	19999
MAR00	401	130	-15	0	366	20365
APR00	98	441	-19	-641	-684	19681
MAY00		366		0		
JUN00		174		0		
JUL00		180		0		
AUG00		201		0		
SEP00		186		0		

NOTE: The 'PROJECTED DST WASTE RECEIPTS' and 'WVR' numbers were updated in October 1999, as supplied by cognizant engineers.

242-A Evaporator:

Campaign 94-1	2417 Kgal
Campaign 94-2	2787 Kgal
Campaign 95-1	2161 Kgal
Campaign 96-1	1117 Kgal
Campaign 97-1	351 Kgal
Campaign 97-2	653 Kgal
Campaign 98-1	818 Kgal
Campaign 00-1 (to April 15, 1994)	641 Kgal
Total waste reduction since restart April 15, 1994: 10,127 Kgal	

COMPARISON OF WASTE VOLUME GENERATIONS FOR HANFORD FACILITIES (ALL VOLUMES IN KGALS)



NOTE: The Other Category is for Waste Generations from, Evaporator Training, Pressure Tests, Cross-Site Transfers and Tank 101-SY remediation work

FACILPAC

FIGURE B-1. COMPARISON OF WASTE VOLUME GENERATIONS FOR HANFORD FACILITIES
(All volumes in Kgals)

APPENDIX C
DOUBLE-SHELL TANK WASTE TYPE
AND SPACE ALLOCATION

Table C-1. Double Shell Tank Waste Inventory - April 30, 2000

TOTAL AVAILABLE DRY SPACE				MONTHLY INVENTORY CHANGE			
COLLAPSED = 27900				2000			
OPEN = 3220				1999			
1974 = 5120				400			
TANK NAME	WASTE TYPE	TOTAL INVENTORY	TOTAL SUBWASTE	TOTAL SOLID (1)	INTERSTITIAL LIQUID (2)	SLUDGE (3)	RESIDUAL UNUSED TANK SPACE
241-AH-101	DN	161	161	0	0	0	0
241-AH-102	CC	908	908	0	22	0	86
241-AH-103	DNB	868	488	487	114	0	164
241-AH-104	DNB	1032	603	448	112	0	86
241-AH-105	DNB	1028	607	488	122	0	14
241-AH-106	CC	26	21	4	13	0	1102
241-AH-107	CC	1042	705	27	165	0	89
241-AH-101	DNB	1113	1113	0	0	0	27
241-AH-102	CP	1089	1089	0	0	0	81
241-AH-103	CC	283	283	0	0	0	867
241-AH-104	CC	1111	1111	0	0	0	28
241-AH-105	DNB	885	879	68	67	0	178
241-AH-106	DN	628	628	0	0	0	818
241-AH-107	DN	26	26	0	0	0	1102
241-AH-108	DN	26	26	0	0	0	1112
241-AH-101	DNB	1128	620	308	230	0	14
241-AH-102	DN	283	227	28	87	0	877
241-AH-103	DNB	612	148	283	36	0	628
241-AH-104	DN	1117	888	231	173	0	23
241-AH-105	DNB	427	172	288	0	0	718
241-AH-106	DNB	748	823	228	88	0	282
241-AH-107	CC	147	83	64	148	0	282
241-AH-108	CC	824	83	84	0	80	883
241-AH-101	DN	824	283	218	82	0	144
241-AH-102	DNB	848	883	48	0	38	378
241-AH-103	DNB	888	870	13	0	73	134
241-AH-104	CC	878	381	888	488	0	22
241-AH-105	DN	888	887	71	0	60	164
241-AH-106	CC	747	381	388	0	311	472
241-AH-108	CC	18831	15482	8718	183	128	11428

NOTE: All Volumes in Kilo-Gallons (Kgals)

NOTE: Solids Adjusted to Most Current Available Data

(1): Total Solids Volume = Sludge + Substrate + Interstitial Liquid

(2): Interstitial Liquids = volume of liquid entrained in the solid waste fraction

Tank Space Usage

WASTE SPACE	
AA-101=	878
AA-108=	1102
AA-101=	27
AA-108=	887
AA-104=	28
AA-108=	178
AA-107=	818
AA-108=	1102
AA-102=	877
AA-104=	628
AA-108=	23
AA-104=	713
AA-108=	282
AA-101=	623
AA-101=	378
AA-102=	472
AA-102=	8748
TOTAL	
SPACE OPERATIONS	
-1548	
SPACE SPACE	
-2283	
AVAILABLE	
6328	
UNAVAILABLE SPACE	
CLOSED TANK SPACE	
6887	
CLOSED TANK SPACE	
6220	
AVAILABLE	
83	
RESTRICTED SPACE	
AA-102=	86
AA-107=	86
AA-108=	81
AA-101=	134
AA-102=	22
TOTAL	
289	
AVAILABLE SPACE	
AA-102=	164
AA-108=	86
AA-108=	14
AA-101=	14
AA-101=	164
AA-102=	282
AA-102=	87
TOTAL	
827	

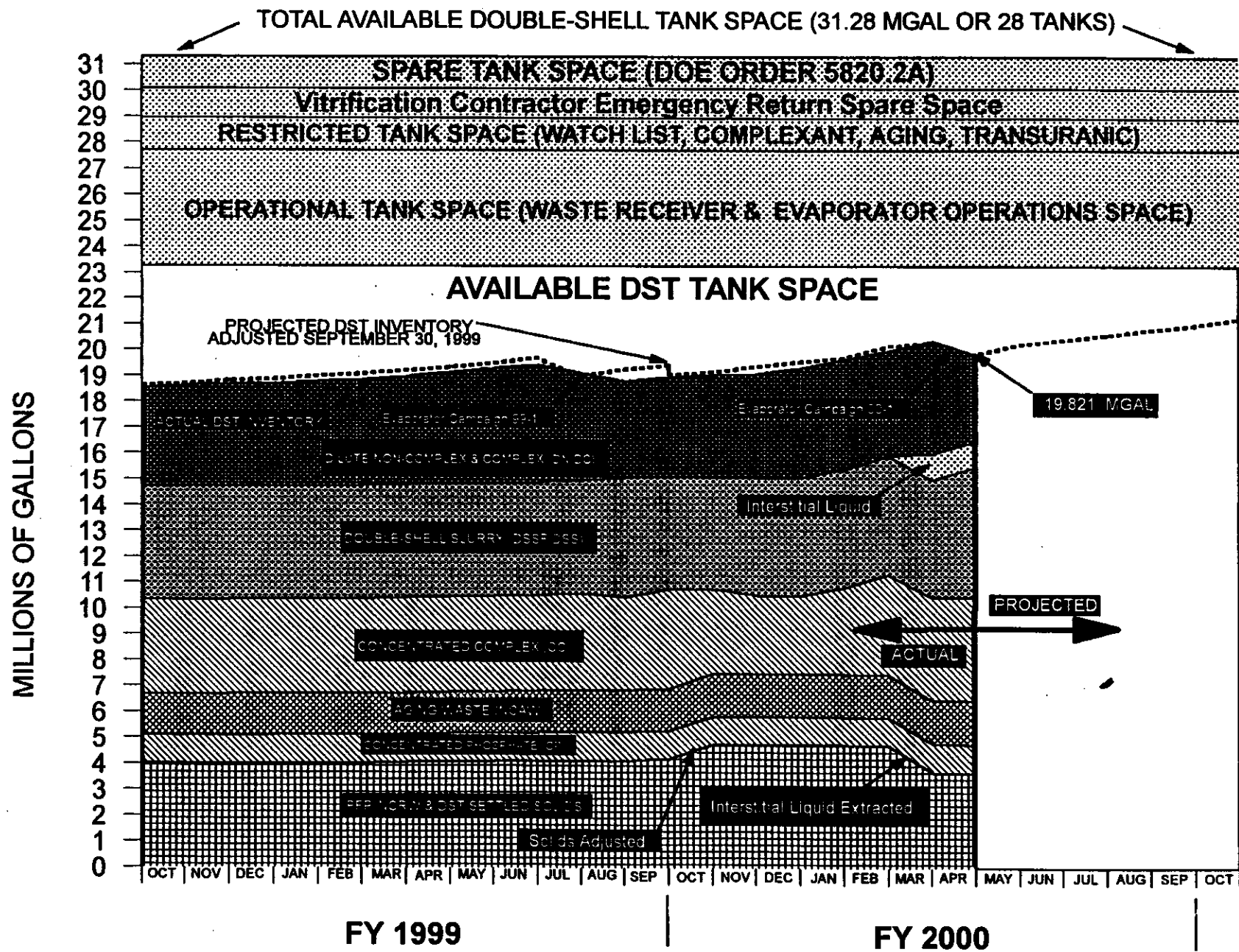
Inventory Calculation by Waste Type:

SOLIDS NON-CORRODIBLE SOL	
AA-101=	161
AA-108=	628
AA-107=	28
AA-108=	28
AA-102=	227
AA-108=	148
AA-108=	888
AA-108=	172
AA-102=	388
AA-102=	887
TOTAL SOLIDS	
3271	
TOTAL SOLIDS	
886	
CORRODIBLE WASTE (CCS)	
AA-101=	888
AA-102=	21
AA-107=	788
AA-102=	283
AA-108=	1111
AA-101=	83
AA-101=	381
AA-102=	381
TOTAL CORRODIBLE	
4881	
TOTAL SOLIDS	
5885	
CONCENTRATED AQUEOUS (CA)	
AA-101=	781
AA-102=	424
TOTAL	
1205	
TOTAL DMS	
488	
TOTAL SOLIDS	
144	
INTERSTITIAL LIQUID (IL)	
AA-102=	88
AA-104=	86
AA-108=	28
AA-108=	86
AA-107=	14
AA-102=	32
AA-101=	148
AA-101=	11
AA-102=	86
TOTAL INTERSTITIAL LIQUID	
1014	
SLUDGE	
3271	
INTERSTITIAL LIQUID	
1014	
TOTAL	
2448	
AQUEOUS WASTE	
1488	
AQUEOUS SOLIDS	
144	
TOTAL	
1632	

Table C-2. Double Shell Tank Available Space - April 30, 2000

TOTAL AVAILABLE SPACE AS OF APRIL 30, 2000=			11459 KGALS	
WATCH LIST TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
Unusable DST Headspace - Due to Special Restrictions Placed on the Tanks, as Stated in the "Wyden Bill"	AN-103	DSS	184 KGALS	
	AN-104	DSSF	88 KGALS	
	AN-105	DSSF	14 KGALS	
	AW-101	DSSF	14 KGALS	
	SY-101	CC	164 KGALS	
	SY-103	CC	393 KGALS	
	TOTAL=		857 KGALS	
AVAILABLE TANK SPACE=		11459 KGALS		
MINUS WATCH LIST SPACE=		-857 KGALS		
TOTAL AVAILABLE SPACE AFTER WATCH LIST SPACE DEDUCTIONS=		10602 KGALS		
RESTRICTED TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
DST Headspace Available to Store Only Specific Waste Types	AN-102	CC	85 KGALS	
	AN-107	CC	98 KGALS	
	AP-102	CP	51 KGALS	
	AZ-101	AW	134 KGALS	
	AZ-102	AW	22 KGALS	
	TOTAL=		390 KGALS	
AVAILABLE SPACE AFTER WATCH LIST DEDUCTIONS=		10602 KGALS		
MINUS RESTRICTED SPACE=		-390 KGALS		
TOTAL AVAILABLE SPACE AFTER RESTRICTED SPACE DEDUCTIONS=		10212 KGALS		
USABLE/WASTE RECEIVER TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
DST Headspace Available to Store Facility Generated and Evaporator Product Waste	AN-101	DN	979 KGALS	
	AN-106	CC	1102 KGALS	
	AP-101	DSSF	27 KGALS	
	AP-103	CC	857 KGALS	
	AP-104	CC	29 KGALS	
	AP-105	DSSF	175 KGALS	
	FACILITY WASTE RECEIVER TANK	AP-106	DN	515 KGALS
	FACILITY WASTE RECEIVER TANK	AP-107	DN	1102 KGALS
	FACILITY WASTE RECEIVER TANK	AP-108	DN	1112 KGALS
	EVAPORATOR FEED TANK	AW-102	DN	877 KGALS
EVAPORATOR RECEIVER TANK	AW-103	NCRW	628 KGALS	
	AW-104	DN	23 KGALS	
	AW-105	NCRW	713 KGALS	
	AW-106	DSSF	392 KGALS	
	AY-101	DC	833 KGALS	
	AY-102	DN	376 KGALS	
	FACILITY WASTE RECEIVER TANK	SY-102	DN	472 KGALS
TOTAL AVAILABLE USABLE TANK SPACE		10212 KGALS		
EVAPORATOR OPERATIONAL TANK SPACE:		-1140 KGALS		
SPARE TANK SPACE: (DOE Order 5820.2A)		-2280 KGALS		
TOTAL TANK SPACE AVAILABLE AFTER ALL DEDUCTIONS=		6792 KGALS		

SEG0400



HNF-EP-0182-145

FIGURE C-1. TOTAL DOUBLE-SHELL TANK INVENTORY

TOTWASTE1

APPENDIX D
WASTE TANK SURVEILLANCE MONITORING TABLES

TABLE D-1. TEMPERATURE MONITORING IN WATCH LIST TANKS (Sheet 1 of 2)

April 30, 2000

These tanks have been identified as Watch List Tanks in accordance with Public Law 101-510, Section 3137, "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," (1990), because they "... may have a serious potential for release of high-level waste due to uncontrolled increases in temperature or pressure."

All Watch List tanks are reviewed for increasing temperature trends. Temperatures in these tanks are monitored by the Tank Monitor And Control System (TMACS), unless indicated otherwise.

Temperatures are taken in the waste unless in-waste thermocouples are out of service. Temperatures below are the highest temperatures recorded in these tanks during this month.

Temperatures in Degrees F.

SINGLE-SHELL TANKS					
Hydrogen (Flammable Gas)			Organics		
Tank No.	Temp.	Officially Added to Watch List	Tank No.	Temp.	Officially Added to Watch List
A-101	147	1/91	C-102	81	5/94
AX-101	128	1/91	C-103	111	1/91
AX-103	107	1/91	2 Tanks		
S-102	101	1/91			
S-111	89	1/91			
S-112	83	1/91			
SX-101	131	1/91			
SX-102	140	1/91			
SX-103	158	1/91			
SX-104	139	1/91			
SX-105	164	1/91			
SX-106	99	1/91			
SX-109 (1)	134	1/91			
T-110 (3)	66	1/91			
U-103	86	1/91			
U-105	88	1/91			
U-107	78	12/93			
U-108	86	1/92			
U-109	83	1/91			
19 STs					
DOUBLE-SHELL TANKS					
AN-103	105	1/91	21 Single-Shell tanks <u>6 Double-Shell tanks</u> 27 Tanks on Watch Lists		
AN-104	106	1/91			
AN-105	101	1/91			
AW-101	98	6/93			
SY-101	110	1/91			
SY-103	94	1/91			
6 STs					

All tanks were removed from the Ferrocyanide Watch List and 18 tanks from the Organics Watch List. Tank C-106 was removed from the High Heat Load Watch List on December 16, 1999. See Table A-3.

TABLE D-1. TEMPERATURE MONITORING IN WATCH LIST TANKS
(sheet 2 of 2)

Notes:**Unreviewed Safety Question (USQ):**

When a USQ is declared, special controls are required, and work in the tanks is limited. There are currently no USQs on single-shell tanks. There is a USQ on double-shell tank SY-101 for liquid level increase.

Hydrogen/Flammable Gas:

These tanks are suspected of having a significant potential for hydrogen/flammable gas generation, entrapment, and episodic release. The USQ associated with these tanks was closed in September 1998. Twenty-five tanks (19 SST and 6 DST) remain on the Hydrogen Watch List.

Organic Salts:

These tanks contain concentrations of organic salts ≥ 3 weight% of total organic carbon (TOC)(equivalent to 10 wt% sodium acetate). The USQ associated with these tanks was closed in October 1998, and 18 organic complexant tanks were removed from the Organic Watch List in December 1998. Two organic solvent tanks (C-102 and C-103) remain on the Organic Watch List.

High Heat:

These tanks contain heat generating strontium-rich sludge and require drainable liquid to be maintained in the tank to promote cooling. There are currently nine tanks on the High Head Load List but no tanks on the High Heat Load Watch List.

Active ventilation:

There are 15 single-shell tanks on active ventilation (seven are on the Watch List as indicated by an asterisk):

C-105	SX-107
C-106 (2)	SX-108
SX-101 *	SX-109 * (1)
SX-102 *	SX-110
SX-103 *	SX-111
SX-104 *	SX-112
SX-105 *	SX-114
SX-106 *	

Footnotes:

- (1) Tank SX-109 is on the Hydrogen Watch List as it has the potential for flammable gas accumulation only because other SX tanks vent through it.
- (2) Tank C-106 was removed from the High Heat Load Watch List on December 16, 1999. A process test to obtain an estimate of the amount of heat load remaining in the waste was completed on February 16, 2000. The remaining heat load in the tank is approximately 10,000 Btu/hr. A draft Process Test Report is being prepared.
- (3) TMACS is O/S due to power outage since August 1999, which caused damage to acromags in T, TX and TY farms. Readings taken manually.

TABLE D-2. TEMPERATURE MONITORING IN NON-WATCH LIST TANKS
April 30, 2000

SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>26,000 Btu/hr)

Nine tanks have high heat loads for which temperature surveillance requirements are established by HNF-SD-WM-TSR-006, Rev 1, *Tank Waste Remediation System Technical Safety Requirements*, December 1999.

In an analysis, WHC-SD-WM-SARR-010, Rev 1, *Heat Removal Characteristics of Waste Storage Tanks*, Kummerer, 1995, it was estimated that nine tanks have heat sources >26,000 Btu/hr, which is the new parameter for determining high heat load tanks. See also document HNF-SD-WM-BIO-001, Rev 1, *Tank Waste Remediation System Basis for Interim Operation*, Noorani, 1998.

Temperatures in these tanks did not exceed TSR requirements for this month, and are monitored by the Tank Monitor and Control System (TMACS), unless indicated otherwise. All high heat load tanks are on active ventilation.

<u>Tank No.</u>	<u>Temperature (F.)</u>
C-106 (1)	63 (Riser #8)
SX-103	158
SX-107	163
SX-108	180
SX-109 (2)	134
SX-110	160
SX-111	181
SX-112	145
SX-114	173
B-Tanks	

Notes:

- (1) C-106 was removed from the High Heat Load Watch List on December 16, 1999. A process test to obtain an estimate of the amount of heat load remaining in the waste was completed on February 16, 2000. The remaining heat load in the tank is approximately 10,000 Btu/hr. A draft Process Test Report is being prepared.
- (2) SX-109 is on the Hydrogen Watch List as it has the potential for flammable gas accumulation only because the other SX tanks vent through it.

SINGLE-SHELL TANKS WITH LOW HEAT LOADS (<26,000 Btu/hr)

There are 114 low heat load non-watch list tanks. Temperatures in tanks connected to TMACS are monitored by TMACS; temperatures in those tanks not yet connected to TMACS are manually taken semiannually in January and July. Temperatures obtained semiannually have been within historical ranges for the applicable tank.

No temperatures have been obtained for several years in the tanks listed below. Most of these tanks have no thermocouple tree.

<u>Tank No.</u>	<u>Tank No.</u>
BX-104	TX-101
BY-102	TX-110
BY-109	TX-114
C-204	TX-116
SX-115	TX-117
T-102	U-104
T-105	

TABLE D-3. ADDITIONS/DELETIONS TO WATCH LISTS BY YEAR
April 30, 2000

Added/Deleted dates may differ from dates that tanks were officially added to the Watch Lists. (See Table A-1).

	Ferrocyanide	Hydrogen	Organics	High Heat	Total Tanks (1)		
					SST	DST	Total
(1) Original List - Removed to Public Law 101-5	23	23	8	1	47	5	52
Added 2/91 (revision to Original List)	1 T-107				1		1
Total - December 31, 1991	24	23	8	1	49	5	54
Added 8/92		1 AW-101				1	1
Total - December 31, 1992	24	24	8	1	49	6	55
Added 3/93			1 U-111		1		1
Deleted 7/93	-4 (BX-110) (BX-111) (BY-101) (T-101)				-4		
Added 12/93		1 (U-107)			0		
Total - December 31, 1993	20	25	9	1	46	6	52
Added 2/94			1 T-111		1		1
Added 5/94			10 A-101 AX-102 C-102 S-111 SX-103 TY-104 U-103 U-105 U-203 U-204		4		4
Deleted 11/94	-2 (BX-102) (BX-106)				-2		
Total - December 31, 1994	18	25	20	1	44	6	50
Deleted 6/96	-4 (C-106) (C-108) (C-111) (C-112)				-4		
Deleted 9/96	-14 (BY-103) (BY-104) (BY-105) (BY-106) (BY-107) (BY-108) (BY-110) (BY-111) (BY-112) (T-107) (TX-118) (TY-101) (TY-103) (TY-104)				-12		
Deleted 12/98			-18 (A-101) (AX-102) (B-103) (S-102) (S-111) (SX-103) (SX-106) (T-111) (TX-105) (TX-118) (TY-104) (U-103) (U-105) (U-106) (U-107) (U-111) (U-203) (U-204)		-10		
Total - January 1997 thru December 1998	0	25	2	1	28	6	34
Deleted 12/99				-1 (C-106)	-1		
Total - January 1999 thru April 2000				0	27	6	33

(1) Eighteen of the 20 tanks were removed from the Organics Watch List in December 1998; eight of the tanks removed from the Organics List are also on the Hydrogen Watch List; therefore, the total tanks added/deleted depends upon whether a tank is also on another list.

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 1 of 6)

April 30, 2000

The following table indicates whether Single-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month:

NOTE:

All Watch List and High Heat tank temperature monitoring is in compliance. (4)

All Dome Elevation Survey monitoring is in compliance, with exception (see footnote 11).

All Psychrometrics monitoring is in compliance (2).
Drywell monitoring no longer required (5).

In-tank photos/videos are taken "as needed"

LEGEND:

(Shaded)	= in compliance with all applicable documentation
N/C	= noncompliance with applicable documentation
O/S	= Out of Service
Neutron	= LOW readings taken by Neutron probe
POP	= Plant Operating Procedure, TO-040-650
MT/FIC/ENRAF	= Surface level measurement devices
OSD	= Operating Spec. Doc., OST-T-151-00013, 00030, 00031
N/A	= Not applicable (not monitored, or no monitoring schedule)
None	= Applicable equipment not installed
FSAR/TSR	= Final Safety Analysis Report/Technical Safety Requirements

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7) Neutron
	Watch List	High Heat			MT	FIC	ENRAF	
A-101	K			LOW	None	None		
A-102				None	None		None	None
A-103				LOW	None	None		
A-104				None	None	None		None
A-105				None		None	None	None
A-106				None	None	None		None
AX-101	X			LOW	None	None		(B)
AX-102				None	None	None		None
AX-103	K			None	None	None		None
AX-104				None	None	None		None
B-101				None	None		None	None
B-102				ENRAF	None	None		None
B-103				None	None		None	O/S
B-104				LOW		None	None	
B-105				LOW		None	None	
B-106				FIC	None		None	None
B-107				None		None	None	None
B-108				None	None		None	None
B-109				None		None	None	None
B-110				LOW		None	None	
B-111				LOW	None		None	
B-112				ENRAF	None	None		None
B-201				MT		None	None	None
B-202				MT		None	None	None
B-203				MT		None	None	None
B-204				MT		None	None	None
BX-101				ENRAF	None	None		None
BX-102				None	None	None		None
BX-103				ENRAF	None	None		None
BX-104			None	ENRAF	None	None		None
BX-105				None	None	None		None
BX-106				ENRAF	None	None		None
BX-107				ENRAF	None	None		None

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 2 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1)				LOW Readings (OSD)(5,7) Neutron
	Watch List	High Heat			MT	IGC (OSD)	ENRAF		
EX-108				None	None	None			None
EX-109				None	None	None			None
EX-110				None	None	None			None
EX-111				LOW	None	None			None
EX-112				ENRAF	None	None			None
BY-101				LOW		None			None
BY-102			None	LOW		None			None
BY-103				LOW	None	None			None
BY-104				LOW		None			None
BY-106				LOW		None			None
BY-107				LOW		None			None
BY-108				None		None			None
BY-109			None	LOW	None	OSD			None
BY-110				LOW	None	None			None
BY-111				LOW	None	None			None
BY-112				LOW		None			None
C-101				None		None			None
C-102				None	None				None
C-103				ENRAF	None	None			None
C-104				None	None	None			None
C-105				None	None	None			None
C-106 (3)				ENRAF	None	None			None
C-107				ENRAF	None	None			None
C-108				None		None			None
C-109				None		None			None
C-110				MT		None			None
C-111				None		None			None
C-112				None	None	None			None
C-201				None		None			None
C-202				None		None			None
C-203				None		None			None
C-204				None		None			None
B-101				ENRAF	None	None			None
B-102				ENRAF	None	None			None
B-103				ENRAF	None	None			None
B-104				LOW	None	None			None
B-105				LOW	None	None			None
B-106				ENRAF	None	None			None
B-107				ENRAF	None	None			None
B-108				LOW	None	None			None
B-109				LOW	None	None			None
B-110				LOW	None	None			(1)
B-111				ENRAF	None	None			None
B-112				LOW	None	None			None
SX-101				LOW	None	None			None
SX-102				LOW	None	None			None
SX-103				LOW	None	None			None
SX-104				LOW	None	None			None
SX-105				LOW	None	None			None
SX-106				LOW	None	None			None
SX-107				ENRAF	None	None			None
SX-108				None	None	None			None

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 3 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7) Neutron
	Watch List	High Heat			MT	FIC	ENRAF	
SX-109	X	X		None	None	None		None
SX-110		X		None	None	None		None
SX-111		X		None	None	None		None
SX-112		X		None	None	None		None
SX-113				None	None	None		None
SX-114		X		None	None	None		None
SX-115			None	None	None	None		None
T-101				None	None	None		None
T-102			None	ENRAF	None	None		None
T-103				None	None	None		None
T-104				LOW	None	None		
T-105			None	None	None	None		None
T-106				None	None	None		None
T-107				ENRAF	None	None		None
T-108				ENRAF	None	None		None
T-109				None	None	None		None
T-110	X			LOW	None	None		
T-111				LOW	None	None		
T-112				ENRAF	None	None		None
T-201				MT	None	None	None	None
T-202				MT		None	None	None
T-203				None		None	None	None
T-204				MT		None	None	None
TX-101			None	ENRAF	None	None		None
TX-102				LOW	None	None		
TX-103				None	None	None		None
TX-104				None	None	None		None
TX-105				None	None	None		None (5)
TX-106				LOW	None	None		
TX-107				None	None	None		None
TX-108				None	None	None		None
TX-109				LOW	None	None		
TX-110			None	LOW	None	None		
TX-111				LOW	None	None		
TX-112				LOW	None	None		
TX-113				LOW	None	None		
TX-114			None	LOW	None	None		
TX-115				LOW	None	None		
TX-116			None	None	None	None		None
TX-117			None	LOW	None	None		
TX-118				LOW	None	None		
TY-101				None	None	None		None
TY-102				ENRAF	None	None		None
TY-103				LOW	None	None		
TY-104				ENRAF	None	None		None
TY-105				None	None	None		None
TY-106				None	None	None		None
U-101				MT		None	None	None
U-102				LOW	None	None		
U-103	X			ENRAF	None	None		
U-104			None	None	None	None	None	None
U-105	X			ENRAF	None	None		
U-106				ENRAF	None	None		

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 4 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7) Neutron
	Watch List	High Heat			MT	FIC	ENRAF	
U-107	X			ENRAF	None	None		
U-108	X			LOW	None	None		
U-109	X			ENRAF	None	None		
U-110				None	None	None		None
U-111				LOW	None	None		
U-112				None		None	None	None
U-201				MT		None	None	None
U-202				MT		None	None	None
U-203				None	None	None		None
U-204				ENRAF	None	None		None
Catch Tanks and Special Surveillance Facilities								
A-302-A	N/A	N/A	N/A	IS	None	None		None
A-302-B	N/A	N/A	N/A	IS		None	None	None
ER-311	N/A	N/A	N/A	IS	None	None		None
AX-152	N/A	N/A	N/A	IS		None	None	None
AZ-151	N/A	N/A	N/A	IS	None		None	None
AZ-154	N/A	N/A	N/A	IS		None	None	None
BX-TK/SMP	N/A	N/A	N/A	IS		None	None	None
A-244 TK/SMP	N/A	N/A	N/A	IS	None	None	None	None
AR-204	N/A	N/A	N/A	IS			None	None
A-417	N/A	N/A	N/A	IS	None	None	None	None
A-350	N/A	N/A	N/A	IS	None	None	None	None
CR-003	N/A	N/A	N/A	IS	None	None	None	None
Vent Sta.	N/A	N/A	N/A	IS		None	None	None
244-S TK/SMP	N/A	N/A	N/A	IS	None	None	None	None
S-302	N/A	N/A	N/A	IS	None	None		None
S-304	N/A	N/A	N/A	IS	None	None		None
TX-244 TK/SMP	N/A	N/A	N/A	IS		None	None	None
TX-302-B	N/A	N/A	N/A	IS		None	None	None
TX-302-C	N/A	N/A	N/A	IS	None	None		None
U-301-B	N/A	N/A	N/A	IS	None	None		None
UX-302-A	N/A	N/A	N/A	IS	None	None		None
S-141	N/A	N/A	N/A	IS	O/S	None	None	None
S-142	N/A	N/A	N/A	IS	O/S	None	None	None
Totals:	21	9	N/C: 0		N/C: 0	N/C: 0	N/C: 0	N/C: 0
149 tanks	Watch List Tanks (4)	High Heat Tanks (4)						

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS -149 TANKS
(Sheet 5 of 6)

Footnotes:

1. All SSTs have either manual tape, FIC, or ENRAF surface level measuring devices. Some also have zip cords.

ENRAF gauges are being installed to replace FICs (or sometimes manual tapes). The ENRAF gauges are being connected to TMACS, but many are currently being read manually from the field. See Table D-6 for list of ENRAF installations.

2. High heat tanks have active exhausters; psychrometrics can be taken in the high heat tanks. Psychrometric readings are taken on an "as needed" basis with the exception of tanks C-105 and C-106. Document OSD-T-151-00013 requires psychrometric readings to be taken in C-105 and C-106 on a monthly frequency when the ventilation system is running. Psychrometric readings previously taken monthly in SX-farm will now be taken annually.
3. Tank C-106 was removed from the High Heat Load Watch List on December 16, 1999.
4. Temperature readings may be regulated by OSD, POP, or FSAR (FSAR only regulates high heat load tanks). Temperatures cannot be obtained in 13 low heat load tanks (see Table A-2). The OSD does not require readings or repair of out-of-service thermocouples for the low heat load ($\leq 26,000$ Btu/h) tanks. However, the POP requires that attempts are to be made semiannually in January and July to obtain readings for these tanks.

Temperatures in some tanks cannot be taken in the waste because the waste level is lower than the lowest thermocouple in these tanks.

Temperatures for many tanks are monitored continuously by TMACS; see Table D-7, TMACS Monitoring Status.

5. Document OSD-T-151-00031, "Operating Specifications for Tank Farm Leak Detection," REV C-0, January 13, 1999, requires that single-shell tanks with the surface level measurement device contacting liquid, partial liquid, or floating crust surface, will be monitored for leak detection on a daily basis. Tanks with a solid surface will be monitored for leak detection on a weekly basis by taking neutron scan data from a Liquid Observation Well (LOW), if an LOW is present. Tanks with a solid surface but without LOWs will not be monitored for leak detection if the tank has been interim stabilized, until an LOW is installed.

This OSD revision does not require drywell surveys to be taken. The OSD specifies what leak detection methods are to be used for each tank, and the requirements if the readings are not taken on the required frequency or if equipment is out of service.

6. Leak detection for the catch tanks is performed by monitoring for the buildup of liquid in the secondary containment (for most tanks with secondary containment) or for decrease in the liquid level for those tanks without secondary containment or secondary containment monitoring.

Catch tank 240-S-302 is monitored for intrusions only, and is not subject to leak detection monitoring requirements until liquid is present above the intrusion level.

Weight Factor is the surface level measuring device currently used in A-417, A-350, 244-A Tank/Sump, and 244-S Tank/Sump. DCRT CR-003 is inactive and measured in gallons.

TABLE D-4. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 149 TANKS
(Sheet 6 of 6)

7. Document SD-WM-TI-605, REV. 0, dated January 1994, describes the rationale for Liquid Observation Well (LOW) installation priority. This priority is based on tank leak status, tank surface condition, and tank stabilization status. Also included is a listing of tanks with the waste level being below two feet which have no priority assigned because no effort will be made to install LOWs in the near future. LOW probes are unable to accurately monitor interstitial liquid levels less than two feet high.

Tanks which will not receive LOWs:

A-102	BX-101	C-201	T-106
A-104	BX-103	C-202	T-108
A-105	BX-105	C-203	T-109
AX-102	BX-106	C-204	TX-107
AX-104	BX-108	SX-110	TY-102
B-102	C-108	SX-113	TY-104
B-103	C-109	SX-115	TY-106
B-112	C-111	T-102	U-101
		T-103	U-112

Total - 34 Tanks

8. Tank TX-105 - the LOW was in riser 8; the riser has been removed and the LOW has not been monitored since January 1987. Liquid levels are being taken in riser 9 by ENRAF and recorded in TMACS.
9. Tank AX-101 - LOW readings are taken by gamma sensors.
10. Tank S-110 - Neutron LOW scan taken on January 27, 2000, was more than 3 standard deviations above baseline, indicating a possible intrusion. Discrepancy Report 00-875 was issued February 1, 2000. Work Package 2W-99-0310 has been issued; work not yet completed. Awaiting steady 60 degree weather to do foam over job.

TABLE D-5. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS

28 TANKS (Sheet 1 of 2)

April 30, 2000

The following table indicates whether Double-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month.

NOTE:

Dome Elevation Surveys are not required for DSTs.

Psychrometrics and In-tank photos/videos are taken "as needed" (2)

LEGEND:

(Shaded)	= In compliance with all applicable documentation
N/C	= Noncompliance with applicable documentation
FIC/ENRAF	= Surface level measurement devices
M.T.	
OSD	= OSD-T-151-0007, OSD-T-151-00031
None	= no M.T., FIC or ENRAF installed
O/S	= Out of Service
W.F.	= Weight Factor
N/A	= Not Applicable (not monitored or no monitoring schedule)
Rad.	= Radiation

Tank Number	Watch List	Temperature Readings (3) (OSD)	Surface Level Readings (1) (OSD)			Radiation Readings		
						Leak Detection Pits (4) (OSD)		Annulus (OSD)
			M.T.	FIC	ENRAF	W.F.	Rad. (6)	
AN-101				None			N/A	
AN-102					None		N/A	
AN-103	X			None			N/A	
AN-104	X		O/S	None			N/A	
AN-105	X		O/S	None			N/A	
AN-106					None		N/A	
AN-107				None		O/S	N/A	
AP-101			O/S	None		O/S (7)	N/A	
AP-102				None		O/S (7)	N/A	
AP-103				None		O/S (7)	N/A	
AP-104			O/S	None		O/S (7)	N/A	
AP-105				None		O/S (7)	N/A	
AP-106				None		O/S (7)	N/A	
AP-107				None		O/S (7)	N/A	
AP-108				None		O/S (7)	N/A	
AW-101	X		O/S	None			N/A	O/S
AW-102					(8)		N/A	O/S
AW-103				None			N/A	
AW-104				None			N/A	O/S
AW-105				None			N/A	
AW-106				None			N/A	
AY-101				None		O/S	N/A	O/S
AY-102				None			N/A	
AZ-101				None	O/S		N/A	O/S
AZ-102				O/S	None		N/A	O/S
BY-101	X		None	None		O/S	N/A	
BY-102			O/S (8)	None			N/A	
BY-103	X		O/S (8)	None		O/S	N/A	
Totals: 28 tanks	6 Watch List Tanks	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0

TABLE D-5. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 28 TANKS
(Sheet 2 of 2)

Footnotes:

1. Some double-shell tanks have both FIC and manual tape which is used when the FIC is out of service. Noncompliance (N/C) will be shown when no readings are obtained. ENRAF gauges are being installed to replace FICs. The ENRAF gauges are being connected to TMACS, but some are currently being read manually.
2. Psychrometric readings are taken on an "as needed" basis. No psychrometric readings are currently being taken in the double-shell tanks.
3. OSD specifies double-shell tank temperature limits, gradients, etc.
4. Applicable OSD and HNF-IP-0842, latest revisions, are used as guidelines for monitoring Leak Detection Pits. See also (6) and (7) below.
5. AW-102 has ENRAF, FIC and M.T. At some point the FIC will be removed.
6. USQ TF-97-0038, dated April 28, 1997, specifies discontinuing the use of leak detection pit radiation monitoring equipment in all double-shell tank farms where the leak detection pits are used as tertiary leak detection. This applies to all double-shell tank farms.
7. Leak Detection Pit weekly readings are being obtained by Instrument Technicians in these tanks:
AP-103C (for tanks AP-101 - 104)
AP-105C (for tanks AP-105 - 108)
8. SY-103 - Manual Tape has sporadic readings. ENRAF is primary device.
SY-102 - Manual Tape has sporadic readings. ENRAF is primary device.

**TABLE D-6. ENRAF SURFACE LEVEL GAUGE INSTALLATION AND
DATA INPUT METHODS**
April 30, 2000

LEGEND											
SACS		= Surveillance Analysis Computer System									
TMACS		= Tank Monitor and Control System									
Auto		= Automatically entered into TMACS and electronically transmitted to SACS									
Manual		= Manually entered directly into SACS by surveillance personnel, from Field Data sheets									
EAST AREA						WEST AREA					
Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method
A-101	09/95	Auto	B-201			B-101	02/95	Auto	TX-101	11/95	Auto
A-102			B-202			B-102	05/95	Auto	TX-102	05/95	Auto
A-103	07/95	Auto	B-203			B-103	05/94	Auto	TX-103	12/95	Auto
A-104	05/95	Manual	B-204			B-104	05/99	Auto	TX-104	03/95	Auto
A-105			BX-101	04/95	Auto	B-105	07/95	Auto	TX-105	04/95	Auto
A-106	01/95	Auto	BX-102	05/95	Auto	B-106	05/94	Auto	TX-106	04/95	Auto
AN-101	08/95	Auto	BX-103	04/95	Auto	B-107	05/94	Auto	TX-107	04/95	Auto
AN-102			BX-104	05/95	Auto	B-108	07/95	Auto	TX-108	04/95	Auto
AN-103	08/95	Auto	BX-105	03/95	Auto	B-109	08/95	Auto	TX-109	11/95	Auto
AN-104	08/95	Auto	BX-106	07/94	Auto	B-110	08/95	Auto	TX-110	05/95	Auto
AN-105	08/95	Auto	BX-107	08/95	Auto	B-111	08/94	Auto	TX-111	05/95	Auto
AN-106	04/00	Manual	BX-108	05/95	Auto	B-112	05/95	Auto	TX-112	05/95	Auto
AN-107			BX-109	08/95	Auto	BX-101	04/95	Auto	TX-113	05/95	Auto
AP-101	08/99	Auto	BX-110	08/95	Auto	BX-102	04/95	Auto	TX-114	05/95	Auto
AP-102	08/99	Auto	BX-111	05/95	Auto	BX-103	04/95	Auto	TX-115	05/95	Auto
AP-103	08/99	Auto	BX-112	03/95	Auto	BX-104	05/95	Auto	TX-116	05/95	Auto
AP-104	07/99	Auto	BY-101			BX-105	05/95	Auto	TX-117	05/95	Auto
AP-105	08/99	Auto	BY-102	08/99	Manual	BX-106	08/94	Auto	TX-118	03/95	Auto
AP-106	08/99	Auto	BY-103	12/95	Manual	BX-107	09/99	Auto	TY-101	07/95	Auto
AP-107	08/99	Auto	BY-104			BX-108	09/99	Auto	TY-102	09/95	Auto
AP-108	08/99	Auto	BY-105			BX-109	09/99	Auto	TY-103	09/95	Auto
AW-101	08/95	Auto	BY-106			BX-110	09/99	Auto	TY-104	08/95	Auto
AW-102	05/95	Auto	BY-107			BX-111	09/99	Auto	TY-105	12/95	Auto
AW-103	05/95	Auto	BY-108			BX-112	09/99	Auto	TY-106	12/95	Auto
AW-104	01/95	Auto	BY-109			BX-113	09/99	Auto	U-101		
AW-105	08/95	Auto	BY-110	02/97	Manual	BX-114	09/99	Auto	U-102	01/95	Manual
AW-106	05/95	Auto	BY-111	02/99	Manual	BX-115	09/99	Manual	U-103	07/94	Auto
AX-101	08/95	Auto	BY-112			BY-101	07/94	Auto	U-104		
AX-102	09/95	Auto	C-101			BY-102	06/94	Auto	U-105	07/94	Auto
AX-103	09/95	Auto	C-102			BY-103	07/94	Auto	U-106	08/94	Auto
AX-104	10/95	Auto	C-103	05/94	Auto	T-101	05/95	Manual	U-107	06/94	Auto
AY-101	03/95	Auto	C-104	04/99	Manual	T-102	06/94	Auto	U-108	05/95	Auto
AY-102	01/95	Auto	C-105	05/95	Manual	T-103	07/95	Manual	U-109	07/94	Auto
AZ-101	08/95	Manual	C-106	02/95	Auto	T-104	12/95	Manual	U-110	01/95	Manual
AZ-102			C-107	04/95	Auto	T-105	07/95	Manual	U-111	01/95	Manual
B-101			C-108			T-106	07/95	Manual	U-112		
B-102	02/95	Manual	C-109			T-107	06/94	Auto	U-201		
B-103			C-110			T-108	10/95	Manual	U-202		
B-104			C-111			T-109	09/94	Manual	U-203	09/95	Manual
B-105			C-112	03/95	Manual	T-110	05/95	Auto	U-204	06/95	Manual
B-106			C-201			T-111	07/95	Manual			
B-107			C-202			T-112	09/95	Manual			
B-108			C-203			T-201					
B-109			C-204			T-202					
B-110						T-203					
B-111						T-204					
B-112	03/95	Manual									
Total East Area: 54						Total West Area: 77					

131 ENRAFs installed: 104 automatically entered into TMACS, 27 manually entered into SACS

TABLE D-7. TANK MONITOR AND CONTROL SYSTEM (TMACS)

April 30, 2000

Note: Indicated below are the number of tanks having at least one operating sensor monitored by TMACS.

Some tanks have more than one sensor: multiple sensors of the same type in a tank are not shown in the table (for example: 10 tanks in BY-Farm have at least one operating TC sensor and 3 tanks in BY-Farm have at least one operating RTD sensor).

Acceptance Testing Completed: Sensors Automatically Monitored by TMACS

EAST AREA	Temperatures		ENRAF Level Gauge	Pressure (b)	Hydrogen (c)	Gas Sample Flow
	Thermocouple Tree (TC)	Resistance Thermal Device (RTD)				
Tank Farm						
A-Farm (6 Tanks)	1		3		1	1
AN-Farm (7 Tanks)	7		4	7	3	3
AP-Farm (8 Tanks)			8			
AW-Farm (6 Tanks)	6		6		1	1
AX-Farm (4 Tanks)	3		4		1	
AY-Farm (2 Tanks)			2			
AZ-Farm (2 Tanks)						
B-Farm (16 Tanks)	1					
BX-Farm (12 Tanks)	11		12 (e)			
BY-Farm (12 Tanks)	10	3				
C-Farm (16 Tanks)	15	1	3	1		
TOTAL EAST AREA (91 Tanks)	54	4	42	8	6	5
WEST AREA						
S-Farm (12 Tanks)	12		12	1	3	1 (f)
SX-Farm (15 Tanks)	14		14	1	7	5 (f)
SY-Farm (3 Tanks) (a)	3		3	1	2	2
T-Farm (16 Tanks) (d)	14	1	3		1	(f)
TX-Farm (18 Tanks) (d)	13		18			
TY-Farm (6 Tanks) (d)	6	3	6			
U-Farm (16 Tanks)	16		6	4	6	6
TOTAL WEST AREA (86 Tanks)	77	4	62	7	19	19
TOTALS (177 Tanks)	131	8	104	15	25	24

- (a) Tank SY-101 has 2 gas sample flow sensors plus 2 vent flow sensors, and 2 ENRAFs.
 (b) Each tank has two sensors (high and low range).
 (c) Each tank has two sensors (high and low range).
 (d) TMACS has been out of service since August 1999 due to power outage which caused damage to acromags in T, TX and TY farms. Readings taken manually.
 (e) BX-106, 108, and 109 ENRAFs out of service. Manual readings taken quarterly.
 (f) S, SX, and T-Farms - five gas sample flow sensors have been unhooked or removed. Will eventually use SHMS equipment on other tanks but none scheduled yet.

APPENDIX E

**MISCELLANEOUS UNDERGROUND STORAGE TANKS
AND SPECIAL SURVEILLANCE FACILITIES**

**TABLE E-1. EAST AND WEST AREA MISCELLANEOUS UNDERGROUND STORAGE TANKS
AND SPECIAL SURVEILLANCE FACILITIES**

ACTIVE - still running transfers through the associated diversion boxes or pipeline encasements

April 30, 2000

<u>FACILITY</u>	<u>LOCATION</u>	<u>PURPOSE (receives waste from:)</u>	<u>(Gallons)</u>	<u>MONITORED BY</u>	<u>REMARKS</u>
EAST AREA					
241-A-302-A	A Farm	A-151 DB	935	SACS/ENRAF/Manually	Foamed over Catch Tank pump pit & div. box to prevent intrusion
241-ER-311	B Plant	ER-151, ER-152 DB	8137	SACS/ENRAF/Manually	
241-AX-152	AX Farm	AX-152 DB	0	SACS/MT	Pumped 11/98
241-AZ-151	AZ Farm	AZ-702 condensate	7865	SACS/FIC/Manually	Volume changes daily - pumped to AZ-102 as needed
241-AZ-154	AZ Farm		25	SACS/MT	
244-BX-TK/SMP	BX Complex	DCRT - Receives from several farms	16604	SACS/MT	Using Manual Tape for tank/sump, pumped 10/16/99 to 66.0 in.
244-A-TK/SMP	A Complex	DCRT - Receives from several farms	2779	MCS/SACS/WTF	WTF- pumped 3/99 to AP-108
A-350	A Farm	Collects drainage	279	MCS/SACS/WTF	WTF (uncorrected) pumped as needed
AR-204	AY Farm	Tanker trucks from various facilities	575	DIP TUBE	Alarms on SACS-pumped to AP-108, 7/99
A-417	A Farm		12344	SACS/WTF	WTF (uncorrected) pumped 4/98
CR-003-TK/SUMP	C Farm	DCRT	3389	MT/ZIP CORD	Zip cord in sump O/S 3/11/96, water intrusion, 1/98
WEST AREA					
241-TX-302-C	TX Farm	TX-154 DB	162	SACS/ENRAF/Manually	
241-U-301-B	U Farm	U-151, U-152, U-153, U-252 DB	8056	SACS/ENRAF/Manually	Returned to service 12/30/93
241-UX-302-A	U Plant	UX-154 DB	2645	SACS/ENRAF/Manually	
241-S-304	S Farm	S-151 DB	130	SACS/ENRAF/Manually	Replaced S-302-A, 10/91; ENRAF installed 7/98
244-S-TK/SMP	S Farm	From original tanks to SY-102	12317	SACS/Manually	Sump not alarming.
244-TX-TK/SMP	TX Farm	From original tanks to SY-102	17361	SACS/Manually	WTF (uncorrected)
Vent Station Catch Tank		Cross Country Transfer Line	351	SACS/Manually	MT

Total Active Facilities 19

LEGEND:	
DB	- Diversion Box
DCRT	- Double-Contained Receiver Tank
TK	- Tank
SMP	- Sump
FIC	- Food Instrument Corporation measurement device
MT	- Manual Tape
Zip Cord	- surface level measurement device
WTF	- Weight/Tens Factor - can be recorded as WTF, CWF (corrected), and Uncorrected WTF
SACS	- Surveillance Automated Control System
MCS	- Monitor and Control System
Manually	- Not connected to any automated system
O/S	- Out of Service
ENRAF	- Surface Level Measuring Device

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TABLE E-2. EAST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

April 30, 2000

<u>FACILITY</u>	<u>LOCATION</u>	<u>RECEIVED WASTE FROM:</u>	<u>(Gallons)</u>	<u>MONITORED BY</u>	<u>REMARKS</u>
216-BY-201	BY Farm	TBP Waste Line	Unknown	NM	(216-BY)
241-A-302-B	A Farm	A-152 DB	5720	SACS/MT	Isolated 1985, Project B-138 Interim Stabilized 1990, Rain intrusion
241-AX-151	N of PUREX	PUREX	Unknown	NM	Isolated 1985
241-B-301-B	B Farm	B-151, B-152, B-153, B-252 DB	22250	NM	Isolated 1985 (1)
241-B-302-B	B Farm	B-154 DB	4930	NM	Isolated 1985 (1)
241-BX-302-A	BX Farm	BR-152, BX-153, BXR-152, BYR-152 DB	840	NM	Isolated 1985 (1)
241-BX-302-B	BX Farm	BX-154 DB	1040	NM	Isolated 1985 (1)
241-BX-302-C	BX Farm	BX-155 DB	870	NM	Isolated 1985 (1)
241-C-301-C	C Farm	C-151, C-152, C-153, C-252 DB	10470	NM	Isolated 1985 (1)
241-CX-70	Hot Semi-	Transfer lines	Unknown	NM	Isolated, Decommission Project,
241-CX-72	Works	Transfer lines	850	NM	See Dwg H-2-95-501, 2/5/87
241-ER-311A	SW B Plant	ER-151 DB	Unknown	NM	Isolated
244-AR VAULT	A Complex	Between farms & B-Plant	Unknown	NM	Not actively being used. Systems activated for final clean-out.
244-BXR-TK/SMP-001	BX Farm	Transfer lines	7200	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-002	BX Farm	Transfer lines	2180	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-003	BX Farm	Transfer lines	1810	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-011	BX Farm	Transfer lines	7100	NM	Interim Stabilization 1985 (1)
361-B-TANK	B Plant	Drainage from B-Plant	Unknown	NM	Interim Stabilization 1985 (1)

Total East Area inactive facilities 18

LEGEND	
DB	Division Box
DCRT	Double-Contained Recovery Tank
MT	Manual Tank
SACS	Surveillance Automated Control System
TK	Tank
SMP	Sump
R	Double-Container Replacement
NM	Not Monitored

(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

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TABLE E-3. WEST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

April 30, 2000

<u>FACILITY</u>	<u>LOCATION</u>	<u>RECEIVED WASTE FROM:</u>	<u>(Gallons)</u>	<u>MONITORED BY</u>	<u>REMARKS</u>
216-TY-201	E. of TY Farm	Supernate from T-112	Unknown	NM	Isolated
231-W-151-001	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
231-W-151-002	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
240-S-302	S Farm	240-S-151 DB	8441	SACS/ENRAF	Assumed Leaker EPDA 85-04
241-S-302-A	S Farm	241-S-151 DB	0		Assumed Leaker TF-EFS-90-042
Partially filled with grout 2/91, determined still assumed leaker after leak test. Manual FIC readings are unobtainable due to dry grouted surface.					
CASS monitoring system retired 2/23/99; intrusion readings discontinued. S-304 replaced S-302-A					
241-S-302-B	S Farm	S Encasements	Unknown	NM	Isolated 1985 (1)
241-SX-302	SX Farm	SX-151 DB, 151 TB	Unknown	NM	Isolated 1987
241-SX-304	SX Farm	SX-152 Transfer Box, SX-151 DB	Unknown	NM	Isolated 1985 (1)
241-T-301	T Farm	DB T-151, -151, -153, -252	Unknown	NM	Isolated 1985 (241-T-301B)
241-TX-302	TX Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TX-302-X-B	TX Farm	TX Encasements	Unknown	NM	Isolated 1985 (1)
241-TX-302-B	TX Farm	TX-155 DB	1600	SACS/MT	New MT installed 7/16/93
241-TX-302-B(R)	E. of TX Farm	TX-155 DB	Unknown	NM	Isolated
241-TY-302-A	TY Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TY-302-B	TY Farm	TY Encasements	Unknown	NM	Isolated 1985 (1)
241-Z-8	E. of Z Plant	Recuplex waste	Unknown	NM	Isolated, 1974, 1975
242-T-135	T Evaporator	T Evaporator	Unknown	NM	Isolated
242-TA-R1	T Evaporator	Z Plant waste	Unknown	NM	Isolated
243-S-TK-1	N. of S Farm	Pers. Decon. Facility	Unknown	NM	Isolated
244-U-TK/SMP	U Farm	DCRT - Receives from several farms	Unknown	NM	Not yet in use
244-TXR VAULT	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-001	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-002	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-003	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
270-W	SE of U Plant	Condensate from U-221	Unknown	NM	Isolated 1970
361-T-TANK	T Plant	Drainage from T-Plant	Unknown	NM	Isolated 1985 (1)
361-U-TANK	U Plant	Drainage from U-Plant	Unknown	NM	Interim Stabilized, MT removed 1984 (1)

Total West Area Inactive Facilities 27

LEGEND: DB - Division Box, TB - Transfer Box
 DCRT - Double Contained Receiving Tank
 TK - Tank
 SMP - Sump
 R - Usually denotes replacement
 FIC - Surface Level Monitoring Device
 MT - Manual Tape
 OOS - Out of Service
 SACS - Surveillance Automated Control System
 NM - Not Monitored
 ENRAF - Surface Level Monitoring Device

(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

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APPENDIX F
LEAK VOLUME ESTIMATES

TABLE F-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES (Sheet 1 of 5)

April 30, 2000

Tank Number	Date Declared Confirmed or Assumed Leaker (3)	Volume Gallons (2)	Associated KiloCuries 137 cs (10)	Interim Stabilized Date (11)	Leak Estimate	
					Updated	Reference
241-A-103	1987	5500 (8)		06/88	1987	(i)
241-A-104	1975	500 to 2500	0.8 to 1.8 (q)	09/78	1983	(a)(q)
241-A-105 (1)	1983	10000 to 277000	85 to 760 (b)	07/79	1991	(b)(o)
241-AX-102	1988	3000 (8)		09/88	1989	(h)
241-AX-104	1977	-- (6)		08/81	1989	(g)
241-B-101	1974	-- (6)		03/81	1989	(g)
241-B-103	1978	-- (6)		02/85	1989	(g)
241-B-105	1978	-- (6)		12/84	1989	(g)
241-B-107	1980	8000 (8)		03/85	1986	(d)(f)
241-B-110	1981	10000 (8)		03/85	1986	(d)
241-B-111	1978	-- (6)		06/85	1989	(g)
241-B-112	1978	2000		05/85	1989	(g)
241-B-201	1980	1200 (8)		08/81	1984	(e)(f)
241-B-203	1983	300 (8)		06/84	1986	(d)
241-B-204	1984	400 (8)		06/84	1989	(g)
241-BX-101	1972	-- (6)		09/78	1989	(g)
241-BX-102	1971	70000	50 (i)	11/78	1986	(d)
241-BX-108	1974	2500	0.5 (i)	07/79	1986	(d)
241-BX-110	1976	-- (6)		08/85	1989	(g)
241-BX-111	1984 (13)	-- (6)		03/95	1993	(g)
241-BY-103	1973	<5000		11/97	1983	(a)
241-BY-105	1984	-- (6)		N/A	1989	(g)
241-BY-106	1984	-- (6)		N/A	1989	(g)
241-BY-107	1984	15100 (8)		07/79	1989	(g)
241-BY-108	1972	<5000		02/85	1983	(a)
241-C-101	1980	20000 (8)(10)		11/83	1986	(d)
241-C-110	1984	2000		05/95	1989	(g)
241-C-111	1988	5500 (8)		03/84	1989	(g)
241-C-201 (4)	1988	550		03/82	1987	(i)
241-C-202 (4)	1988	450		08/81	1987	(i)
241-C-203	1984	400 (8)		03/82	1986	(d)
241-C-204 (4)	1988	350		08/82	1987	(i)
241-S-104	1968	24000 (8)		12/84	1989	(g)
241-SX-104	1988	6000 (8)		04/00	1988	(k)
241-SX-107	1984	<5000		10/79	1983	(a)
241-SX-108 (5)(14)	1962	2400 to 35000	17 to 140 (m)(q)(t)	08/79	1991	(m)(q)(t)
241-SX-109 (5)(14)	1965	<10000	<40 (n)(t)	05/81	1992	(n)(t)
241-SX-110	1976	5500 (8)		08/79	1989	(g)
241-SX-111 (14)	1974	500 to 2000	0.5 to 2.4 (i)(q)(t)	07/79	1986	(d)(q)(t)
241-SX-112 (14)	1969	30000	40 (i)(t)	07/79	1986	(d)(t)
241-SX-113	1982	15000	8 (i)	11/78	1986	(d)
241-SX-114	1972	-- (6)		07/79	1989	(g)
241-SX-115	1965	50000	21 (o)	09/78	1992	(o)
241-T-101	1992	7500 (8)		04/93	1992	(p)
241-T-103	1974	<1000 (8)		11/83	1989	(g)
241-T-106	1973	115000 (8)	40 (i)	08/81	1986	(d)
241-T-107	1984	-- (6)		05/96	1989	(g)
241-T-108	1974	<1000 (8)		11/78	1980	(f)
241-T-109	1974	<1000 (8)		12/84	1989	(g)
241-T-111	1979, 1994 (12)	<1000 (8)		02/95	1994	(f)(r)
241-TX-105	1977	-- (6)		04/83	1989	(g)
241-TX-107 (5)	1984	2500		10/79	1986	(d)
241-TX-110	1977	-- (6)		04/83	1989	(g)
241-TX-113	1974	-- (6)		04/83	1989	(g)
241-TX-114	1974	-- (6)		04/83	1989	(g)
241-TX-115	1977	-- (6)		09/83	1989	(g)
241-TX-116	1977	-- (6)		04/83	1989	(g)
241-TX-117	1977	-- (6)		03/83	1989	(g)
241-TY-101	1973	<1000 (8)		04/83	1980	(f)
241-TY-103	1973	3000	0.7 (i)	02/83	1986	(d)
241-TY-104	1981	1400 (8)		11/83	1986	(d)
241-TY-105	1980	35000	4 (i)	02/83	1986	(d)
241-TY-106	1959	20000	2 (i)	11/78	1986	(d)
241-U-101	1959	30000	20 (i)	09/79	1986	(d)
241-U-104	1961	55000	0.09 (i)	10/78	1986	(d)
241-U-110	1975	5000 to 8100 (8)	0.05 (q)	12/84	1986	(d)(q)
241-U-112	1980	8500 (8)		09/79	1986	(d)
67 Tanks <750,000 - 1,050,000 (7)						

N/A = not applicable (not yet interim stabilized)

TABLE F-1. SINGLE-SHELL LEAK VOLUME ESTIMATES
(Sheet 2 of 5)

Footnotes:

- (1) Current estimates [see reference(b)] are that 610 Kgallons of cooling water was added to Tank 241-A-105 from November 1970 to December 1978 to aid in evaporative cooling. In accordance with Dangerous Waste Regulations [Washington Administrative Code 173-303-070 (2)(a)(ii), as amended, Washington State Department of Ecology, 1990, Olympia, Washington], any of this cooling water that has been added and subsequently leaked from the tank must be classified as a waste and should be included in the total leak volume. In August 1991, the leak volume estimate for this tank was updated in accordance with the WAC regulations. Previous estimates excluded the cooling water leaks from the total leak volume estimates because the waste content (concentration) in the cooling water which leaked should be much less than the original liquid waste in the tank (the sludge is relatively insoluble). The total leak volume estimate in this report (10 Kgallons to 277 Kgallons) is based on the following (see References):
1. Reference (b) contains an estimate of 5 Kgallons to 15 Kgallons for the initial leak prior to August 1968.
 2. Reference (b) contains an estimate of 5 Kgallons to 30 Kgallons for the leak while the tank was being sluiced from August 1968 to November 1970.
 3. Reference (b) contains an estimate of 610 Kgallons of cooling water added to the tank from November 1970 to December 1978 but it was estimated that the leakage was small during this period. This reference contains the statement "Sufficient heat was generated in the tank to evaporate most, and perhaps nearly all, of this water." This results in a low estimate of zero gallons leakage from November 1970 to December 1978.
 4. Reference (c) contains an estimate the 378 to 410 Kgallons evaporated out of the tank from November 1970 to December 1978. Subtracting the minimum evaporation estimate from the cooling water added estimate provides a range from 0 to 232 Kgallons of cooling water leakage from November 1970 to December 1978.
- | | <u>Low Estimate</u> | <u>High Estimate</u> |
|--------------------------------|---------------------|----------------------|
| Prior to August 1968 | 5,000 | 15,000 |
| August 1968 to November 1970 | 5,000 | 30,000 |
| November 1970 to December 1978 | <u>0</u> | <u>232,000</u> |
| Totals | 10,000 | 277,000 |
- (2) These leak volume estimates do not include (with some exceptions), such things as: (a) cooling/raw water leaks, (b) intrusions (rain infiltration) and subsequent leaks, (c) leaks inside the tank farm but not through the tank liner (surface leaks, pipeline leaks, leaks at the joint for the overflow or fill lines, etc.), and (d) leaks from catch tanks, diversion boxes, encasements, etc.
- (3) In many cases, a leak was suspected long before it was identified or confirmed. For example, reference (d) shows that Tank 241-U-104 was suspected of leaking in 1956. The leak was "confirmed" in 1961. This report lists the "assumed leaker" date of 1961. Using present standards, Tank 241-U-104 would have been declared an assumed leaker in 1956. In 1984, the criteria designations of "suspected leaker," "questionable integrity," "confirmed leaker," "declared leaker," "borderline" and "dormant," were merged into one category now reported as "assumed leaker." See reference (f) for explanation of when, how long, and how fast some of the tanks leaked. It is highly likely that there have been undetected leaks from single-shell tanks because of the nature of their design and instrumentation.

TABLE F-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 3 of 5)

- (4) The leak volume estimate date for these tanks is before the "declared leaker" date because the tank was in a "suspected leaker" or "questionable integrity" status; however, a leak volume had been estimated prior to the tank being reclassified.
- (5) The increasing radiation levels in drywells and laterals associated with these three tanks could be indicating continuing leak or movement of existing radionuclides in the soil. There is no conclusive way to confirm these observations.
- (6) Methods were used to estimate the leak volumes from these 19 tanks based on the assumption that their cumulative leakage is approximately the same as for 18 of the 24 tanks identified in footnote (9). For more details see reference (g). The total leak volume estimate for these tanks is 150 Kgallons (rounded to the nearest Kgallons), for an average of approximately 8 Kgallons for each of 19 tanks.
- (7) The total has been rounded to the nearest 50 Kgallons. Upper bound values were used in many cases in developing these estimates. It is likely that some of these tanks have not actually leaked.
- (8) Leak volume estimate is based solely on observed liquid level decreases in these tanks. This is considered to be the most accurate method for estimating leak volumes.
- (9) The curie content shown is as listed in the reference document and is not decayed to a consistent date; therefore, a cumulative total is inappropriate.
- (10) Tank 241-C-101 experienced a liquid level decrease in the late 1960s and was taken out of service and pumped to a "minimum heel" in December 1969. In 1970, the tank was classified as a "questionable integrity" tank. Liquid level data show decreases in level throughout the 1970s and the tank was saltwell pumped during the 1970s, ending in April 1979. The tank was reclassified as a "confirmed leaker" in January 1980. See references (q) and (s); refer to reference (s) for information on the potential for there to have been leaks from other C-farm tanks (specifically, C-102, C-103, and C-109).
- (11) These dates indicate when the tanks were declared to be interim stabilized. In some cases, the official interim stabilization documents were issued at a later date. Also, in some cases, the field work associated with interim stabilization was completed at an earlier date.
- (12) Tank T-111 was declared an assumed re-leaker on February 28, 1994, due to a decreasing trend in surface level measurement. This tank was pumped, and interim stabilization completed on February 22, 1995.
- (13) Tank BX-111 was declared an assumed re-leaker in April 1993. Preparations for pumping were delayed, following an administrative hold placed on all tank farm operations in August 1993. Pumping resumed and the tank was declared interim stabilized on March 15, 1995.
- (14) The leak volume and curie release estimates on SX-108, SX-109, SX-111, and SX-112 have been re-evaluated using a Historical Leak Model [see reference (u)]. In general, the model estimates are much higher than the values listed in the table, both for volume and curies released. The values listed in the table do not reflect this revised estimate because, "In particular, it is worth emphasizing that this report was never meant to be a definitive update for the leak baseline at the Hanford Site. It was rather meant to be an attempt to view the issue of leak inventories with a new and different methodology." (This quote is from the first page of the referenced report).

TABLE F-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 4 of 5)

References:

- (a) Murthy, K.S., et al, June 1983, *Assessment of Single-Shell Tank Residual Liquid Issues at Hanford Site*, Washington, PNL-4688, Pacific Northwest Laboratory, Richland, Washington.
- (b) WHC, 1991a, *Tank 241-A-105 Leak Assessment*, WHC-MR-0264, Westinghouse Hanford Company, Richland, Washington.
- (c) WHC, 1991b, *Tank 241-A-105 Evaporation Estimate 1970 Through 1978*, WHC-EP-0410, Westinghouse Hanford Company, Richland, Washington.
- (d) Smith, D. A., January 1986, *Single-Shell Tank Isolation Safety Analysis Report*, SD-WM-SAR-006, Rev. 1, Westinghouse Hanford Company, Richland, Washington.
- (e) McCann, D. C., and T. S. Vail, September 1984, *Waste Status Summary*, RHO-RE-SR-14, Rockwell Hanford Operations, Richland, Washington.
- (f) Catlin, R. J., March 1980, *Assessment of the Surveillance Program of the High-Level Waste Storage Tanks at Hanford*, Hanford Engineering Development Laboratory, Richland, Washington.
- (g) Baumhardt, R. J., May 15, 1989, Letter to R. E. Gerton, U.S. Department of Energy-Richland Operations Office, *Single-Shell Tank Leak Volumes*, 8901832B R1, Westinghouse Hanford Company, Richland, Washington.
- (h) WHC, 1990a, Occurrence Report, *Surface Level Measurement Decrease in Single-Shell Tank 241-AX-102*, WHC-UO-89-023-TF-05, Westinghouse Hanford Company, Richland, Washington.
- (i) Groth, D. R., July 1, 1987, Internal Memorandum to R. J. Baumhardt, *Liquid Level Losses in Tanks 241-C-201, -202 and -204*, 65950-87-517, Westinghouse Hanford Company, Richland, Washington.
- (j) Groth, D. R. and G. C. Owens, May 15, 1987, Internal Memorandum to J. H. Roecker, *Tank 103-A Integrity Evaluation*, Westinghouse Hanford Company, Richland, Washington.
- (k) Dunford, G. L., July 8, 1988, Internal Memorandum to R. K. Welty, *Engineering Investigation: Interstitial Liquid Level Decrease in Tank 241-SX-104*, 13331-88-416, Westinghouse Hanford Company, Richland, Washington.
- (l) ERDA, 1975, *Final Environmental Statement Waste Management Operations, Hanford Reservation, Richland, Washington*, ERDA-1538, 2 vols., U.S. Energy Research and Development Administration, Washington, D.C.
- (m) WHC, 1992a, *Tank 241-SX-108 Leak Assessment*, WHC-MR-0300, Westinghouse Hanford Company, Richland, Washington.
- (n) WHC, 1992b, *Tank 241-SX-109 Leak Assessment*, WHC-MR-0301, Westinghouse Hanford Company, Richland, Washington.
- (o) WHC, 1992c, *Tank 241-SX-115 Leak Assessment*, WHC-MR-0302, Westinghouse Hanford Company, Richland, Washington.

TABLE F-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 5 of 5)

- (p) WHC, 1992d, Occurrence Report, *Apparent Decrease in Liquid Level in Single Shell Underground Storage Tank 241-T-101, Leak Suspected; Investigation Continuing*, RL-WHC-TANKFARM-1992-0073, Westinghouse Hanford Company, Richland, Washington.
- (q) WHC, 1990b, *A History of the 200 Area Tank Farms*, WHC-MR-0132, Westinghouse Hanford Company, Richland, Washington.
- (r) WHC, 1993a, *Assessment of Unsaturated Zone Radionuclide Contamination Around Single-Shell Tanks 241-C-105 and 241-C-106*, WHC-SD-EN-TI-185, REV OA, Westinghouse Hanford Company, Richland, Washington.
- (s) WHC, 1994, Occurrence Report, *Apparent Liquid Level Decrease in Single Shell Underground Storage Tank 241-T-111; Declared an Assumed Re-Leaker*, RL-WHC-TANKFARM-1994-0009, Westinghouse Hanford Company, Richland, Washington.
- (t) HNF, 1998, Agnew, S. F. and R. A. Corbin, August 1998, *Analysis of SX Farm Leak Histories - Historical Leak Model*, (HLM), HNF-3233, Rev. 0, Los Alamos National Laboratory, Los Alamos, New Mexico

APPENDIX G

**SINGLE-SHELL TANKS INTERIM STABILIZATION
CONTROLLED, CLEAN AND STABLE (CCS) STATUS**

TABLE G -1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (Sheet 1 of 3)

April 30, 2000

Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method
A-101	SOUND	N/A		C-101	ASMD LKR	11/83	AR	T-108	ASMD LKR	11/78	AR
A-102	SOUND	08/89	SN	C-102	SOUND	08/86	JET	T-109	ASMD LKR	12/84	AR
A-103	ASMD LKR	08/88	AR	C-103	SOUND	N/A		T-110	SOUND	01/00 (5)	JET
A-104	ASMD LKR	08/78	AR	C-104	SOUND	09/89	SN	T-111	ASMD LKR	02/86	JET
A-105	ASMD LKR	07/79	AR	C-105	SOUND	10/86	AR	T-112	SOUND	03/81	AR(2)(3)
A-106	SOUND	08/82	AR	C-106	SOUND	N/A		T-201	SOUND	04/81	AR (3)
AX-101	SOUND	N/A		C-107	SOUND	09/86	JET	T-202	SOUND	08/81	AR
AX-102	ASMD LKR	08/88	SN	C-108	SOUND	03/84	AR	T-203	SOUND	04/81	AR
AX-103	SOUND	08/87	AR	C-109	SOUND	11/83	AR	T-204	SOUND	08/81	AR
AX-104	ASMD LKR	08/81	AR	C-110	ASMD LKR	06/86	JET	TX-101	SOUND	02/84	AR
B-101	ASMD LKR	03/81	SN	C-111	ASMD LKR	03/84	SN	TX-102	SOUND	04/83	JET
B-102	SOUND	08/86	SN	C-112	SOUND	08/80	AR	TX-103	SOUND	08/83	JET
B-103	ASMD LKR	02/86	SN	C-201	ASMD LKR	03/82	AR	TX-104	SOUND	08/79	SN
B-104	SOUND	08/86	SN(2)	C-202	ASMD LKR	08/81	AR	TX-105	ASMD LKR	04/83	JET
B-105	ASMD LKR	12/84	AR	C-203	ASMD LKR	03/82	AR	TX-106	SOUND	08/83	JET
B-106	SOUND	03/86	SN	C-204	ASMD LKR	09/82	AR	TX-107	ASMD LKR	10/79	AR
B-107	ASMD LKR	03/86	SN	S-101	SOUND	N/A		TX-108	SOUND	03/83	JET
B-108	SOUND	06/86	SN	S-102	SOUND	N/A		TX-109	SOUND	04/83	JET
B-109	SOUND	04/86	SN	S-103	SOUND	04/00	JET (8)	TX-110	ASMD LKR	04/83	JET
B-110	ASMD LKR	12/84	AR(2)	S-104	ASMD LKR	12/84	AR	TX-111	SOUND	04/83	JET
B-111	ASMD LKR	06/86	SN(2)	S-105	SOUND	08/88	JET	TX-112	SOUND	04/83	JET
B-112	ASMD LKR	06/86	SN	S-106	SOUND	N/A		TX-113	ASMD LKR	04/83	JET
B-201	ASMD LKR	08/81	AR (3)	S-107	SOUND	N/A		TX-114	ASMD LKR	04/83	JET
B-202	SOUND	06/86	AR(2)	S-108	SOUND	12/86	JET	TX-115	ASMD LKR	08/83	JET
B-203	ASMD LKR	08/84	AR	S-109	SOUND	N/A		TX-116	ASMD LKR	04/83	JET
B-204	ASMD LKR	08/84	AR	S-110	SOUND	01/87	JET	TX-117	ASMD LKR	03/83	JET
BX-101	ASMD LKR	08/78	AR	S-111	SOUND	N/A		TX-118	SOUND	04/83	JET
BX-102	ASMD LKR	11/78	AR	S-112	SOUND	N/A		TY-101	ASMD LKR	04/83	JET
BX-103	SOUND	11/83	AR(2)	SX-101	SOUND	N/A		TY-102	SOUND	08/79	AR
BX-104	SOUND	08/89	SN	SX-102	SOUND	N/A		TY-103	ASMD LKR	02/83	JET
BX-105	SOUND	03/81	SN	SX-103	SOUND	N/A		TY-104	ASMD LKR	11/83	AR
BX-106	SOUND	07/86	SN	SX-104	ASMD LKR	04/00	JET (7)	TY-105	ASMD LKR	02/83	JET
BX-107	SOUND	08/80	JET	SX-105	SOUND	N/A		TY-106	ASMD LKR	11/78	AR
BX-108	ASMD LKR	07/79	SN	SX-106	SOUND	N/A		U-101	ASMD LKR	09/79	AR
BX-109	SOUND	08/80	JET	SX-107	ASMD LKR	10/79	AR	U-102	SOUND	N/A	
BX-110	ASMD LKR	08/86	SN	SX-108	ASMD LKR	08/79	AR	U-103	SOUND	N/A	
BX-111	ASMD LKR	03/86	JET	SX-109	ASMD LKR	06/81	AR	U-104	ASMD LKR	10/78	AR
BX-112	SOUND	08/80	JET	SX-110	ASMD LKR	08/79	AR	U-105	SOUND	N/A	
BY-101	SOUND	06/84	JET	SX-111	ASMD LKR	07/79	SN	U-106	SOUND	N/A	
BY-102	SOUND	04/86	JET	SX-112	ASMD LKR	07/79	AR	U-107	SOUND	N/A	
BY-103	ASMD LKR	11/87	JET	SX-113	ASMD LKR	11/78	AR	U-108	SOUND	N/A	
BY-104	SOUND	01/86	JET	SX-114	ASMD LKR	07/79	AR	U-109	SOUND	N/A	
BY-105	ASMD LKR	N/A		SX-115	ASMD LKR	08/78	AR	U-110	ASMD LKR	12/84	AR
BY-106	ASMD LKR	N/A		T-101	ASMD LKR	04/83	SN	U-111	SOUND	N/A	
BY-107	ASMD LKR	07/78	JET	T-102	SOUND	03/81	AR(2)(3)	U-112	ASMD LKR	08/79	AR
BY-108	ASMD LKR	02/86	JET	T-103	ASMD LKR	11/83	AR	U-201	SOUND	08/79	AR
BY-109	SOUND	07/87	JET	T-104	SOUND	11/89 (4)	JET	U-202	SOUND	08/79	SN
BY-110	SOUND	01/86	JET	T-105	SOUND	08/87	AR	U-203	SOUND	08/79	AR
BY-111	SOUND	01/86	JET	T-106	ASMD LKR	08/81	AR	U-204	SOUND	08/79	SN
BY-112	SOUND	08/84	JET	T-107	ASMD LKR	06/86	JET				

LEGEND:

AR = Administratively Interim stabilized

JET = Saltwell jet pumped to remove drainable interstitial liquid

SN = Supernate pumped (Non-Jet pumped)

N/A = Not yet Interim stabilized

ASMD LKR = Assumed Leaker

Interim Stabilized Tanks	123
Not Yet Interim Stabilized	26
Total Single-Shell Tanks	149

TABLE G-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS
(sheet 2 of 2)

Footnotes:

- (1) These dates indicate when the tanks were actually interim stabilized. In some cases, the official interim stabilization documents were issued at a later date.
- (2) Although tanks, BX-103, T-102 and T-112 met the interim stabilization administrative procedure at the time they were stabilized, they no longer meet the recently updated administrative procedure. The tanks were re-evaluated in 1996 and memo 9654456, J. H. Wicks to Dr. J. K. McClusky, DOE-RL, dated September 1996, was issued which recommended that no further pumping be performed on these tanks, based on an economic evaluation.

Document RPP-5556, Rev. 0, "Updated Drainable Interstitial Liquid Volume Estimates for 119 Single-Shell Tanks Declared Stabilized," J. G. Field, February 7, 2000, states that five tanks no longer meet the stabilization criteria (BX-103, T-102, and T-112 exceed the supernate criteria, and BY-103 and C-102 exceed the DIL criteria).

An intrusion investigation was completed on tank B-202 in 1996 because of a detected increase in surface level. As a result of this investigation, it was determined that this tank no longer meets the recently updated administrative procedure for 200 series tanks.
- (3) Original Interim Stabilization data are missing on four tanks: B-201, T-102, T-112, and T-201.
- (4) Tank 241-T-104 was Interim Stabilized on November 19, 1999. In-tank video taken October 7, 1999, shows the surface is clearly sludge-type waste with no saltcake present. No visible water on surface. Waste surface appears level across tank with numerous cracks. There is a minimal collapsed area around the saltwell screen, with no visible bottom.
- (5) Tank 241-T-110 was Interim Stabilized on January 5, 2000, due to major equipment failure. An in-tank video taken October 7, 1999 (pumping was discontinued on August 12, 1999), showed the surface of this tank as smooth, brown-tinted sludge with visible cracks.
- (6) Tank 241-S-103 was declared Interim Stabilized April 18, 2000. The surface is a rough, black and brown-colored waste with yellow patches of saltcake visible throughout. The surface appears to be damp but not saturated, and shows irregular cracking typically seen with surfaces beginning to dry out. A pool of supernatant liquid (10 feet in diameter, 5 feet deep, 1.0 Kgallons) is visible from video observations.
- (7) Tank 241-SX-104 was declared Interim Stabilized April 26, 2000, due to major equipment failure. The surface is a rough, yellowish gray saltcake waste with an irregular surface of visible cracks and shelves that were created as the surface dried out. The waste surface appears to be dry and shows no standing water within the tank.

TABLE G-2. SINGLE-SHELL TANK INTERIM STABILIZATION MILESTONES

April 30, 2000

(sheet 1 of 2)

New single-shell tank interim stabilization milestones were negotiated in 1999 and are identified in the "Consent Decree." The Consent Decree was approved on August 16, 1999.

CONSENT DECREE
Attachments A-1 and A-2

Following is the schedule for pumping liquid waste from the remaining twenty-nine (29) single-shell tanks. This schedule is enforceable pursuant to the terms of the Decree except for the "Project Pumping Completion Dates" which are estimates only and not enforceable. (Note: Schedule does not include C-106)

Tank Designation		Pumping Initiated	Projected Pumping Completion Date	Interim Stabilization Date
1.	T-104	Already initiated	May 30, 1999	November 19, 1999
2.	T-110	Already initiated	May 30, 1999	January 5, 2000
3.	SX-104	Already initiated	December 30, 2000	April 26, 2000
4.	SX-106	Already initiated	December 30, 2000	
5.	S-102	Already initiated	March 30, 2001	
6.	S-106	Already initiated	March 30, 2001	
7.	S-103	Already initiated	March 30, 2001	April 18, 2000
8.	U-103*	September 26, 1999	April 15, 2002	
9.	U-105*	December 10, 1999	April 15, 2002	
10.	U-102*	January 20, 2000	April 15, 2002	
11.	U-109*	March 11, 2000	April 15, 2002	
12.	A-101	October 30, 2000	September 30, 2003	
13.	AX-101	October 30, 2000	September 30, 2003	
14.	SX-105	March 15, 2001	February 28, 2003	
15.	SX-103	March 15, 2001	February 28, 2003	
16.	SX-101	March 15, 2001	February 28, 2003	
17.	U-106*	March 15, 2001	February 28, 2003	
18.	BY-106	July 15, 2001	June 30, 2003	
19.	BY-105	July 15, 2001	June 30, 2003	
20.	U-108	December 30, 2001	August 30, 2003	
21.	U-107	December 30, 2001	August 30, 2003	
22.	S-111	December 30, 2001	August 30, 2003	
23.	SX-102	December 30, 2001	August 30, 2003	
24.	U-111	November 30, 2002	September 30, 2003	
25.	S-109	November 30, 2002	September 30, 2003	
26.	S-112	November 30, 2002	September 30, 2003	
27.	S-101	November 30, 2002	September 30, 2003	
28.	S-107	November 30, 2002	September 30, 2003	
29.	C-103	No later than December 30, 2000, DOE will determine whether the organic layer and pumpable liquids will be pumped from Tank C-103 together or separately, and will establish a deadline for initiating pumping of this tank. The parties will incorporate the initiation deadline into this schedule as provided in Section VI of the Decree. CHG issued contract to subcontractor for scope and cost estimate. Comments to Draft Review have been incorporated; report expected May 2000.		

* Tanks containing organic complexants.

TABLE G-2. SINGLE-SHELL TANK INTERIM STABILIZATION MILESTONES
(sheet 2 of 2)

Completion of Interim Stabilization. DOE will complete interim stabilization of all 29 single-shell tanks listed above by September 30, 2004.

Percentage of Pumpable Liquid Remaining to be Removed.

93% of Total Liquid	9/30/1999
38% of Organic Complexed Pumpable Liquids	9/30/2000
5% of Organic Complexed Pumpable Liquids	9/30/2001
18% of Total Liquid	9/30/2002
2% of Total Liquid	9/30/2003

The "percentage of pumpable liquid remaining to be removed" is calculated by dividing the volume of pumpable liquid remaining to be removed from tanks not yet interim stabilized by the sum of the total amount of liquid that has been pumped and the pumpable liquid that remains to be pumped from all tanks.

TABLE G-3. SINGLE-SHELL TANKS STABILIZATION STATUS SUMMARY

April 30, 2000

Partial Interim Isolated (PI)	Intrusion Prevention Completed (IP)		Interim Stabilized (IS)	
<u>EAST AREA</u>	<u>EAST AREA</u>	<u>WEST AREA</u>	<u>EAST AREA</u>	<u>WEST AREA</u>
A-101	A-103	S-104	A-102	S-103
A-102	A-104	S-105	A-103	S-104
	A-105		A-104	S-105
AX-101	A-106	SX-107	A-105	S-108
		SX-108	A-106	S-110
BY-102	AX-102	SX-109		
BY-103	AX-103	SX-110	AX-102	SX-104
BY-105	AX-104	SX-111	AX-103	SX-107
BY-106		SX-112	AX-104	SX-108
BY-109	B-FARM - 16 tanks	SX-113		SX-109
	BX-FARM - 12 tanks	SX-114	B-FARM - 16 tanks	SX-110
		SX-115	BX-FARM - 12 tanks	SX-111
C-103	BY-101			SX-112
C-105	BY-104	T-102	BY-101	SX-113
C-106	BY-107	T-103	BY-102	SX-114
East Area 11	BY-108	T-105	BY-103	SX-115
<u>WEST AREA</u>	BY-110	T-106	BY-104	
S-101	BY-111	T-108	BY-107	T-Farm - 16 tanks
S-102	BY-112	T-109	BY-108	TX-FARM - 18 tanks
S-103		T-112	BY-109	TY-FARM - 6 tanks
S-106	C-101	T-201	BY-110	
S-107	C-102	T-202	BY-111	U-101
S-108	C-104	T-203	BY-112	U-104
S-109	C-107	T-204		U-110
S-110	C-108		C-101	U-112
S-111	C-109	TX-FARM - 18 tanks	C-102	U-201
S-112	C-110	TY-FARM - 6 tanks	C-104	U-202
	C-111		C-105	U-203
SX-101	C-112	U-101	C-107	U-204
SX-102	C-201	U-104	C-108	West Area 63
SX-103	C-202	U-112	C-109	Total 123
SX-104	C-203	U-102	C-110	
SX-105	C-204	U-202	C-111	
SX-106	East Area 65	U-203	C-112	
		U-204	C-201	
T-101		West Area 53	C-202	
T-104		Total 108	C-203	
T-107			C-204	
T-110			East Area 80	
T-111				
U-102	<u>Controlled, Clean, and Stable (CCS)</u>			
U-103				
U-105	<u>EAST AREA</u>	<u>WEST AREA</u>		
U-106	BX-FARM - 12 Tanks	TX-FARM - 18 tanks		
U-107		TY FARM - 6 tanks		
U-108	East Area 12	West Area 24		
U-109		Total 36		
U-110				
U-111				
West Area 29	Note: CCS activities have been deferred			
Total 40	until funding is available.			

APPENDIX H
TANKS AND EQUIPMENT CODE AND
STATUS DEFINITIONS

TABLE H - 1. TANK AND EQUIPMENT CODE/STATUS DEFINITIONS
April 30, 2000

1. TANK STATUS CODES

WASTE TYPE (also see definitions, section 3)

AGING	Aging Waste (Neutralized Current Acid Waste [NCAW])
CC	Complexant Concentrate Waste
CP	Concentrated Phosphate Waste
DC	Dilute Complexed Waste
DN	Dilute Non-Complexed Waste
DSS	Double-Shell Slurry
DSSF	Double-Shell Slurry Feed
NCPLX	Non-Complexed Waste
PD/PN	Plutonium-Uranium Extraction (PUREX) Neutralized Cladding Removal Waste (NCRW), transuranic waste (TRU)
PT	Plutonium Finishing Plant (PFP) TRU Solids

TANK USE (DOUBLE-SHELL TANKS ONLY)

CWHT	Concentrated Waste Holding Tank
DRCVR	Dilute Receiver Tank
EVFD	Evaporate Feed Tank
SRCVR	Slurry Receiver Tank

2. SOLID AND LIQUID VOLUME DETERMINATION METHODS

F	Food Instrument Company (FIC) Automatic Surface Level Gauge
E	ENRAF Surface Level Gauge (being installed to replace FICs)
M	Manual Tape Surface Level Gauge
P	Photo Evaluation
S	Sludge Level Measurement Device

3. DEFINITIONS

WASTE TANKS - GENERAL

Waste Tank Safety Issue

A potentially unsafe condition in the handling of waste material in underground storage tanks that requires corrective action to reduce or eliminate the unsafe condition.

Watch List Tank

An underground storage tank containing waste that requires special safety precautions because it may have a serious potential for release of high level radioactive waste because of uncontrolled increases in temperature or pressure. Special restrictions have been placed on these tanks by "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510, (also known as the Wyden Amendment).

Characterization

Characterization is understanding the Hanford tank waste chemical, physical, and radiological properties to the extent necessary to insure safe storage and interim operation, and ultimate disposition of the waste.

WASTE TYPES

Aging Waste (AGING)

High level, first cycle solvent extraction waste from the PUREX plant (NCAW)

Concentrated Complexant (CC)

Concentrated product from the evaporation of dilute complexed waste.

Concentrated Phosphate Waste (CP)

Waste originating from the decontamination of the N Reactor in the 100 N Area. Concentration of this waste produces concentrated phosphate waste.

Dilute Complexed Waste (DC)

Characterized by a high content of organic carbon including organic complexants: ethylenediaminetetraacetic acid (EDTA), citric acid, and hydroxyethyl-ethylenediaminetriacetic acid (HEDTA), being the major complexants used. Main sources of DC waste in the DST system are saltwell liquid inventory (from SSTs).

Dilute Non-Complexed Waste (DN)

Low activity liquid waste originating from T and S Plants, the 300 and 400 Areas, PUREX facility (decladding supernatant and miscellaneous wastes), 100 N Area (sulfate waste), B Plant, saltwells, and PFP (supernate).

Double-Shell Slurry (DSS)

Waste that exceeds the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. For reporting purposes, DSS is considered a solid.

Double-Shell Slurry Feed (DSSF)

Waste concentrated just before reaching the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. This form is not as concentrated as DSS.

Non-complexed (NCPLX)

General waste term applied to all Hanford Site (NCPLX) liquors not identified as complexed.

PUREX Decladding (PD)

PUREX Neutralized Cladding Removal Waste (NCRW) is the solids portion of the PUREX plant neutralized cladding removal waste stream; received in Tank Farms as a slurry. NCRW solids are classified as transuranic (TRU) waste.

PFP TRU Solids (PT)

TRU solids fraction from PFP Plant operations.

Drainable Interstitial Liquid (DIL)

Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity. (See also Section 4)

Supernate

The liquid above the solids or in large liquid pools covered by floating solids in waste storage tanks. (See also Section 4 below)

Ferrocyanide

A compound of iron and cyanide commonly expressed as FeCN . The actual formula for the ferrocyanide anion is $[\text{Fe}(\text{CN})_6]^{-4}$.

INTERIM STABILIZATION (Single-Shell Tanks only)**Interim Stabilized (IS)**

A tank which contains less than 50 Kgallons of drainable interstitial liquid and less than 5 Kgallons of supernatant liquid. If the tank was jet pumped to achieve interim stabilization, then the jet pump flow or saltwell screen inflow must also have been at or below 0.05 gpm before interim stabilization criteria is met.

Jet Pump

The jet pump system includes 1) a jet assembly with foot valve mounted to the base of two pipes that extend from the top of the well to near the bottom of the well casing inside the saltwell screen, 2) a centrifugal pump to supply power fluid to the down-hole jet assembly, 3) flexible or rigid transfer jumpers, 4) a flush line, and 5) a flowmeter. The jumpers contain piping, valves, and pressure and limit switches.

The centrifugal pump and jet assembly are needed to pump the interstitial liquid from the saltwell screen into the pump pit, nominally a 40-foot elevation rise. The power fluid passes through a nozzle in the jet assembly and acts to convert fluid pressure head to velocity head, thereby reducing the pressure in the jet assembly chamber. The reduction in pressure allows the interstitial liquid to enter the jet assembly chamber and mix with the power fluid. Velocity head is converted to pressure head above the nozzle, lifting power fluid, and interstitial liquid to the pump pit. Pumping rates vary from 0.05 gallons to about 4 gpm.

Saltwell Screen

The saltwell system is a 10-inch diameter saltwell casing consisting of a stainless steel saltwell screen welded to a Schedule 40 carbon steel pipe. The casing and screen are to be inserted into the 12-inch tank riser located in the pump pit. The stainless steel screen portion of the system will extend through the tank waste to near the bottom of the tank. The saltwell screen portion of the casing is an approximately 10-foot length of 300 Series, 10-inch diameter, stainless steel pipe with screen openings (slots) of 0.05 inches.

Emergency Pumping Trailer

A 45-foot tractor-type trailer is equipped to provide storage space and service facilities for emergency pumping equipment: this consists of two dedicated jet pump jumpers and two jet pumps, piping and dip tubes for each, two submersible pumps and attached piping, and a skid-mounted Weight Factor Instrument Enclosure (WFIE) with an air compressor and electronic recording instruments. The skid also contains a power control station for the pumps, pump pit leak detection, and instrumentation. A rack for over 100 feet of overground double-contained piping is also in the trailer.

INTRUSION PREVENTION (ISOLATION) Single-Shell Tanks only**Partially Interim Isolated (PI)**

The administrative designation reflecting the completion of the physical effort required for Interim Isolation except for isolation of risers and piping that is required for jet pumping or for other methods of stabilization.

Interim Isolated (II)

The administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. In June 1993, Interim Isolation was replaced by Intrusion Prevention.

Intrusion Prevention (IP)

Intrusion Prevention is the administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank,

or diversion box. Under no circumstances are electrical or instrumentation devices disconnected or disabled during the intrusion prevention process (with the exception of the electrical pump).

Controlled, Clean, and Stable (CCS)

Controlled, Clean, and Stable reflects the completion of several objectives: "Controlled" - provide remote monitoring for required instrumentation and implement controls required in the TWRS Authorization Basis; "Clean" - remove surface soil contamination and downpost the Tank Farms to RBA/URMA/RA radiological control status, remove abandoned equipment, and place reusable equipment in compliant storage; and "Stable" - remove pumpable liquids from the SSTs and IMUSTs and isolate the tanks.

TANK INTEGRITY

Sound

The integrity classification of a waste storage tank for which surveillance data indicate no loss of liquid attributed to a breach of integrity.

Assumed Leaker

The integrity classification of a waste storage tank for which surveillance data indicate a loss of liquid attributed to a breach of integrity.

Assumed Re-Leaker

A condition that exists after a tank has been declared as an "assumed leaker" and then the surveillance data indicates a new loss of liquid attributed to a breach of integrity.

TANK INVESTIGATION

Intrusion

A term used to describe the infiltration of liquid into a waste tank.

SURVEILLANCE INSTRUMENTATION

Drywells

Drywells are vertical boreholes with 6-inch (internal diameter) carbon steel casings positioned radially around SSTs. These wells range between 50 and 250 feet in depth, and are monitored between the range of 50 to 150 feet. The wells are sealed when not in use. They are called drywells because they do not penetrate to the water table and are therefore usually "dry." There are 759 drywells.

Monitoring is done by *gamma radiation or neutron-moisture sensors* to obtain scan profiles of radiation or moisture in the soil as a function of well depth, which could be indicative of tank leakage.

Two single-shell tanks (C-105 and C-106) are currently monitored monthly by gamma radiation sensors. The remaining drywells are monitored on request by gamma radiation sensors. Monitoring by neutron-moisture sensors is done only on request.

Laterals

Laterals are horizontal drywells positioned under single-shell waste storage tanks to detect radionuclides in the soil which could be indicative of tank leakage. These drywells can be monitored by radiation detection probes. Laterals are 4-inch inside diameter steel pipes located 8 to 10 feet below the tank's concrete base. There are three laterals per tank. Laterals are located only in A and SX farms. There are currently no functioning laterals and no plan to prepare them for use.

Surface Levels

The surface level measurements in all waste storage tanks are monitored by manual or automatic conductivity probes, and recorded and transmitted or entered into the Surveillance Analysis Computer System (SACS).

Automatic FIC

An automatic waste surface level measurement device is manufactured by the Food Instrument Company (FIC). The instrument consists of a conductivity electrode (plummet) connected to a calibrated steel tape, a steel tape reel housing and a controller that automatically raises and lowers the plummet to obtain a waste surface level reading. The controller can provide a digital display of the data and until February 1999, the majority of the FICs transmitted readings to the CASS. Since CASS retirement, all FIC gauges are read manually. FICs are being replaced by ENRAF detectors (see below).

ENRAF 854 ATG Level Detector

FICs and some manual tapes are in the process of being replaced by the ENRAF ATG 854 level detector. The ENRAF gauge, fabricated by ENRAF Incorporated, determines waste level by detecting variations in the weight of a displacer suspended in the tank waste. The displacer is connected to a wire wound onto a precision measuring drum. A level causes a change in the weight of the displacer which will be detected by the force transducer. Electronics within the gauge causes the servo motor to adjust the position of the displacer and compute the tank level based on the new position of the displacer drum. The gauge displays the level in decimal inches. The first few ENRAFs that received remote reading capability transmit liquid level data via analog output to the Tank Monitor and Control System (TMACS). The remaining ENRAFs and future installations will transmit digital level data to TMACS via an ENRAF Computer Interface Unit (CIU). The CIU allows fully remote communication with the gauge, minimizing tank farm entry.

Annulus

The annulus is the space between the inner and outer shells on DSTs only. Drain channels in the insulating and/or supporting concrete carry any leakage to the annulus space where conductivity probes are installed. The annulus conductivity probes and radiation detectors are the primary means of leak detection for all DSTs.

Liquid Observation Well (LOW)

In-tank liquid observation wells are used for monitoring the interstitial liquid level (ILL) in single-shell waste storage tanks. The wells are usually constructed of fiberglass or TEFZEL-reinforced epoxy-polyester resin (TEFZEL, a trademark of E. I. du Pont de Nemours & Company). There are a few LOWs constructed of steel. LOWs are sized to extend to within 1 inch of the bottom of the waste tank, are sealed at their bottom ends and have a nominal outside diameter of 3.5 inches. Two probes are used to monitor changes in the ILL; gamma and neutron, which can indicate intrusions or leakage by increases or decreases in the ILL. There are 65 LOWs (64 are in operation) installed in SSTs that contain or are capable of containing greater than 50 Kgallons of drainable interstitial liquid, and in two DSTs only. The LOWs installed in two DSTs, (SY-102 and AW-103 tanks), are used for special, rather than routine, surveillance purposes only.

Thermocouple (TC)

A thermocouple is a thermoelectric device used to measure temperature. More than one thermocouple on a device (probe) is called a thermocouple tree. In DSTs there may be one or more thermocouple trees in risers in the primary tank. In addition, in DSTs only, there are thermocouple elements installed in the insulating concrete, the lower primary tank knuckle, the secondary tank concrete foundation, and in the outer structural concrete.

These monitor temperature gradients within the concrete walls, bottom of the tank, and the domes. In SSTs, one or more thermocouples may be installed directly in a tank, although some SSTs do not have any trees installed. A single thermocouple (probe) may be installed in a riser, or lowered down an existing

riser or LOW. There are also four thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

In-tank Photographs and Videos

In-tank photographs and videos may be taken to aid in resolving in-tank measurement anomalies and determine tank integrity. Photographs and videos help determine sludge and liquid levels by visual examination.

TERMS/ACRONYMS

CCS Controlled, Clean and Stable (tank farms)

FSAR Final Safety Analysis Report (replaces BIOS, effective October 18, 1999)

II Interim Isolated

IP Intrusion Prevention Completed

IS Interim Stabilized

MT/FIC/ENRAF Manual Tape, Food Instrument Corporation, ENRAF Corporation (surface level measurement devices)

OSD Operating Specifications Document

PI Partial Interim Isolated

SAR Safety Analysis Reports

SHMS Standard Hydrogen Monitoring System

TMACS Tank Monitor and Control System

TPA Hanford Federal Facility Consent and Compliance Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment, 1994 (Tri-Party Agreement)

USQ Unreviewed Safety Question

Wyden Amendment "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-510.

4. INVENTORY AND STATUS BY TANK – COLUMN VOLUME CALCULATIONS AND DEFINITIONS FOR TABLE E-6 (SINGLE-SHELL TANKS)

COLUMN HEADING	COLUMN VOLUME CALCULATIONS (Underlined)/DEFINITIONS
Total Waste	<u>Solids volume plus Supernatant liquid.</u> Solids include sludge and saltcake (see definitions below).

COLUMN HEADING	COLUMN VOLUME CALCULATIONS (Underlined)/DEFINITIONS
Supernate (1)	<u>May be either measured or estimated.</u> Supernate is either the estimated or measured liquid floating on the surface of the waste or under a floating solids crust. In-tank photographs or videos are useful in estimating the liquid volumes; liquid floating on solids and core sample data are useful in estimating large liquid pools under a floating crust.
Drainable Interstitial Liquid (DIL) (1)	<u>This is initially calculated.</u> Drainable interstitial liquid is calculated based on the saltcake and sludge volumes, using calculated porosity values from past pumping or actual data for each tank. Interstitial liquid is liquid that fills the interstitial spaces of the solids waste. The sum of the interstitial liquid contained in saltcake and sludge minus an adjustment for capillary height is the initial volume of drainable interstitial liquid.
Pumped This Month	<u>Net total gallons of liquid pumped from the tank during the month.</u> If supernate is present, pump production is first subtracted from the supernatant volume. The remainder is then subtracted from the drainable interstitial liquid volume.
Total Pumped (1)	<u>Cumulative net total gallons of liquid pumped from 1979 to date.</u>
Drainable Liquid Remaining (DLR) (1)	<u>Supernate plus Drainable Interstitial Liquid.</u> The total Drainable Liquid Remaining is the sum of drainable interstitial liquid and supernate.
Pumpable Liquid Remaining (PLR) (1)	<u>Drainable Liquid Remaining minus unpumpable volume.</u> Not all drainable interstitial liquid is pumpable.
Sludge	<u>Solids formed during sodium hydroxide additions to waste.</u> Sludge usually was in the form of suspended solids when the waste was originally received in the tank from the waste generator. In-tank photographs or videos may be used to estimate the volume.
Saltcake	<u>Results from crystallization and precipitation after concentration of liquid waste, usually in an evaporator.</u> If saltcake is layered over sludge, it is only possible to measure total solids volume. In-tank photographs or videos may be used to estimate the saltcake volume.
Solids Volume Update	<u>Indicates the latest update of any change in the solids volume.</u>
Solids Update Source - See Footnote	<u>Indicates the source or basis of the latest solids volume update.</u>
Last In-tank Photo	<u>Date of last in-tank photographs taken.</u>
Last In-tank Video	<u>Date of last in-tank video taken.</u>
See Footnotes for These Changes	<u>Indicates any change made the previous month.</u> A footnote explanation for the change follows the Inventory and Status by Tank Appendix (Table E-6).

- (1) As pumping continues, supernate, DIL, DLR, PLR, and total gallons pumped are adjusted accordingly based on actual pump volumes.

APPENDIX I
TANK FARM CONFIGURATION, STATUS
AND FACILITY CHARTS

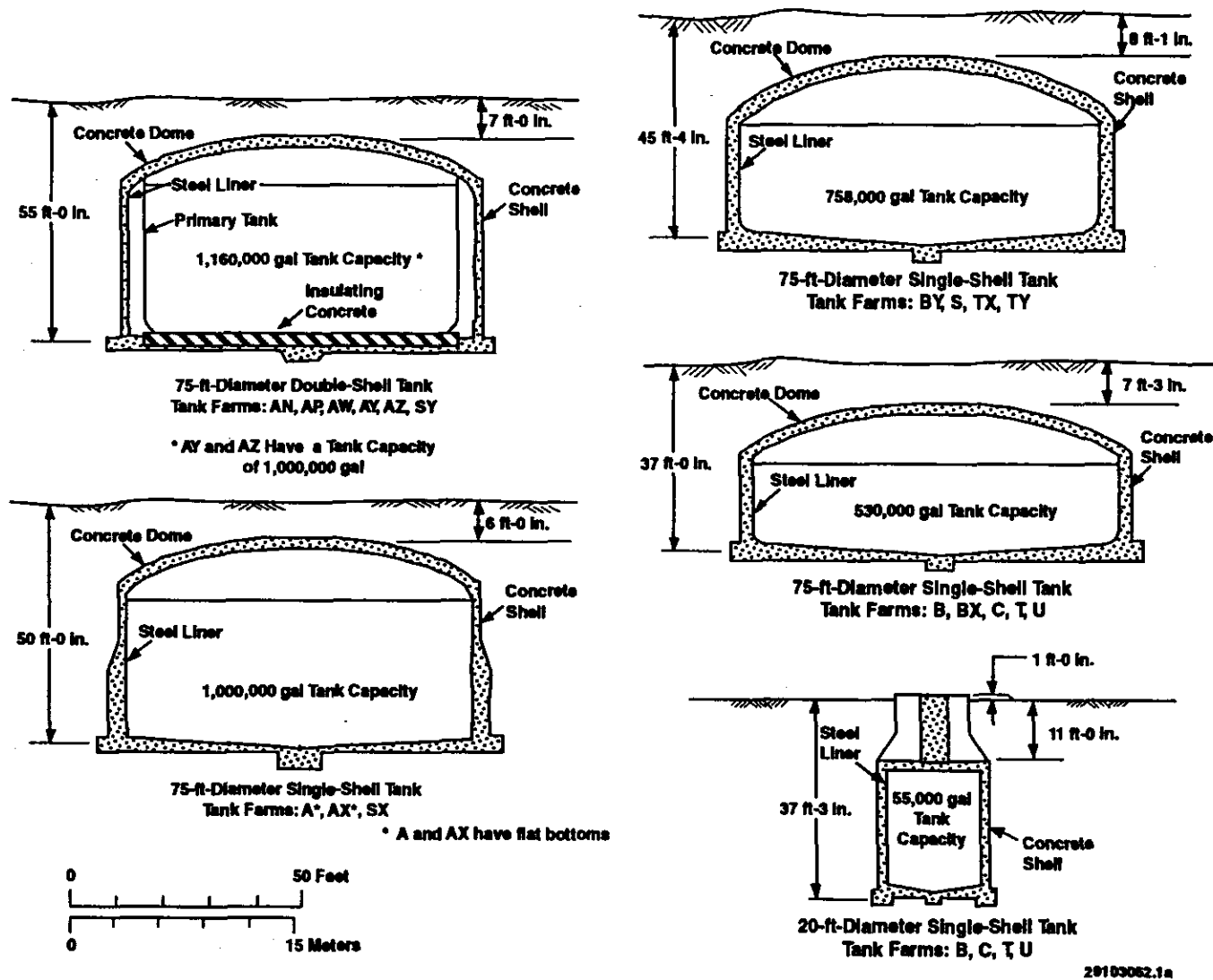


FIGURE I-1. HIGH-LEVEL WASTE TANK CONFIGURATION

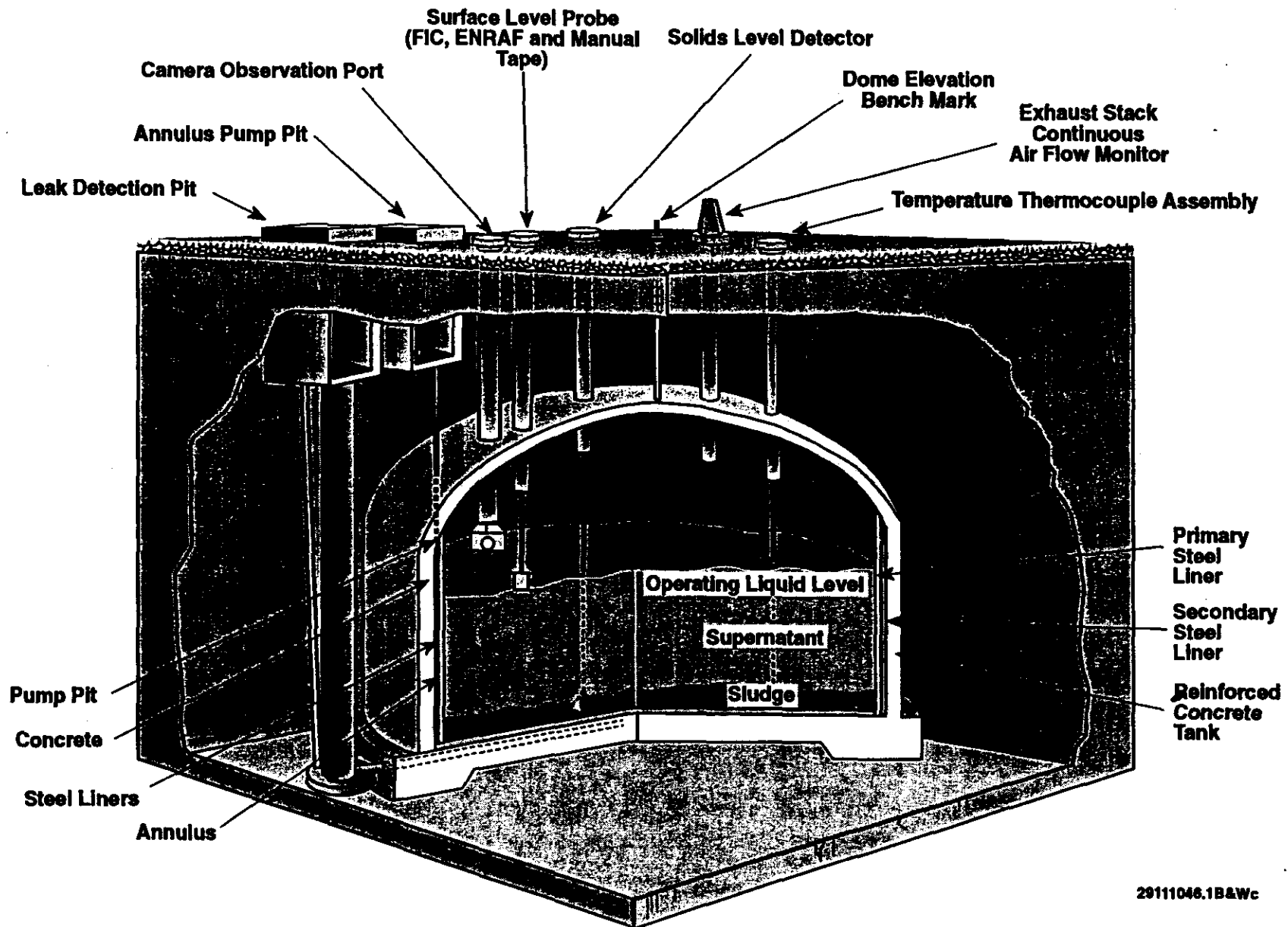
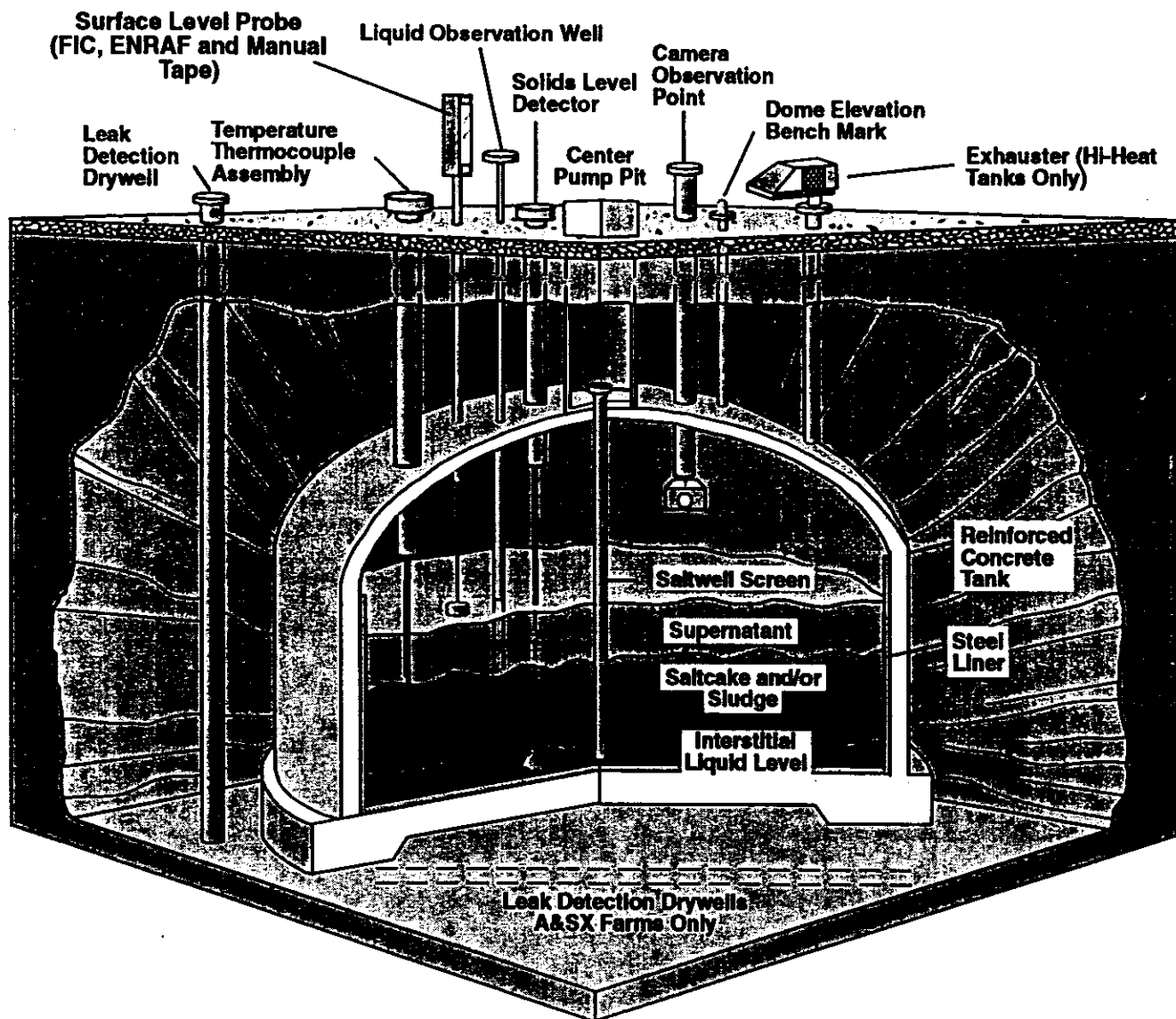


FIGURE I-2. DOUBLE-SHELL TANK INSTRUMENTATION CONFIGURATION



29111046.2B&Wb

FIGURE I-3. SINGLE-SHELL TANK INSTRUMENTATION CONFIGURATION

THE TANK FARM FACILITIES CHARTS (colored foldouts)
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